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ABSTRACT

This manual provides school foodservice management with information for purchasing conventional foodservice production equipment using a decision-making process and critical pathway approach. Chapters are organized by each phase of the decision-making process, and purchasing tips are highlighted throughout the guide to give suggestions, or alert management to essential information. The first chapter focuses on helping the foodservice professional clarify the guiding principles of the decision-making process, principles that reflect the philosophy and goals of the school and community. Subsequent chapters examine industry trends, provide a view of the equipment industry, discuss project planning, explain equipment by functional areas, explore the decision-making process and specification development, explain the bid and receiving processes, and detail alternative purchasing strategies. Following a glossary of terms is an extensive appendix covering such areas as sample warranties; decision forms; equipment guidelines; checklists for equipment receiving and installation; samples of a procurement plan, solicitation/invitation to bid, and request for quotations; and descriptions of purchasing process boilerplate. (GR)

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1999

Team Nutrition Presents
A Guide for Purchasing Food Service Equipment

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A Guide for Purchasing
Food Service Equipment
NFSMI
National Food Service Management Institute
The University of Mississippi

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1999

Team Nutrition Presents

A Guide for Purchasing Food Service Equipment

In the continuing effort to provide technical assistance through the Team Nutrition Initiatve, the United States Department of Agriculture's Food and Nutrition Service, in cooperation with the National Food Service Management Institute (NFSMI), is pleased to bring you *A Guide for Purchasing Food Service Equipment*. This *Guide* was developed by NFSMI under a grant from USDA.

Team Nutrition is printing and distributing a copy, free of charge, to each School Food Authority nationwide. We hope that this publication will help you manage your food service operation most efficiently.

You can buy additional copies from the NFSMI by calling 1-800-321-3054. The item number is R35-98 and the cost is $50. Please direct questions about distribution of the *Guide* to USDA Child Nutrition Division at 703-305-1624 and questions about the content to Dr. Martha Conklin, NFSMI, Division of Applied Research, 601-266-5773.

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National Food Service Management Institute

The University of Mississippi

Location

The National Food Service Management Institute (NFSMI) was established by Congress in 1989 at The University of Mississippi in Oxford. The Institute operates under a grant agreement with the United States Department of Agriculture, (USDA) Food and Nutrition Service. NFSMI's Applied Research Division is located at The University of Southern Mississippi in Hattiesburg.

Mission

The mission of the NFSMI is to provide information and services that promote the continuous improvement of Child Nutrition Programs.

Vision

The vision of the National Food Service Management Institute is to be a leader in providing education, research, and resources to promote excellence in Child Nutrition Programs.

Programs and Services

- Quality publications appropriate for child nutrition personnel at an affordable price
- Applied research for development of effective child nutrition management practices
- Workshops and seminars for training child nutrition personnel
- National network of trainers
- Training materials developed by states for resale
- Education and training standards and materials
- Free training and information teleconferences through Nutrition Satellite Network
- Clearinghouse for information retrieval and dissemination
- Technical assistance through toll-free "help" lines

For more information, please call NFSMI at 1-800-321-3054,

NFSMI - Building the Future Through Child Nutrition

PREFACE

Congratulations! You have the opportunity to actively participate in the process of purchasing new foodservice equipment. You have many decisions to make that will impact your final outcome.

Knowledge is power. The more information you have the more confident you are that the decisions you make will give you the outcome you want.

A Guide for Purchasing Foodservice Equipment is designed to help you purchase conventional foodservice production equipment using a decision-making process and critical pathway approach. This guide has a companion reference which is **The New Design Handbook for School Food Service (1997)**. Whether you are purchasing new equipment for the first time or the fifteenth time you will find the guidelines beneficial. Think of purchasing equipment as a journey down the Purchasing Parkway. There are three different exits off the Purchasing Parkway:

- Highway of New Construction
- Renovation Road
- Replacement Drive

Each exit off the Purchasing Parkway has some unique turns, but each journey follows the same basic critical pathways.

Some journeys down the Highway of New Construction will require use of **The New Design Handbook for School Food Service (1997)** because both design and purchasing decisions are involved. **A Guide for Purchasing Foodservice Equipment** addresses the decision-making process for purchasing foodservice equipment.

The *Guide* is organized by chapters on each phase of the process. Traveler's Tips are scattered throughout the *Guide* to highlight key points, to give suggestions, or to alert you to essential information. You are encouraged to read the *Guide*, write in the margins, discuss content with professional colleagues, and utilize the self study components. In this way the *Guide* will help you work through the decision-making process for purchasing equipment necessary to transform the present foodservice system into an up-to-date, efficient operation.

A Guide for Purchasing Foodservice Equipment is the result of a multi-year project by the National Food Service Management Institute (NFSMI). This project created resources for Child Nutrition Program (CNP) directors, childcare providers, and other foodservice professionals to help guide the decision-making process for the purchase of foodservice equipment. A publication resulting from the project includes, *Guidelines for Equipment to Prepare Healthy Meals* (Nettles and Carr, 1996).

A Guide for Purchasing Foodservice Equipment is the next phase of the project continuum. Use it to make decisions today that will affect your customers and employees for many years to come.

A Guide for Purchasing Foodservice Equipment was developed with input from NFSMI Applied Research Division (ARD), industry advisors, CNP directors, peer review committee of outline, peer review committee of text, and USDA. Many thanks go to the foodservice professionals who gave their time and expertise to make this project a reality.

Traveler's Tip

If you are involved in designing a new foodservice concept, you will need to purchase and use *The New Design Handbook for School Food Service*. It is available from NFSMI.

Acknowledgements

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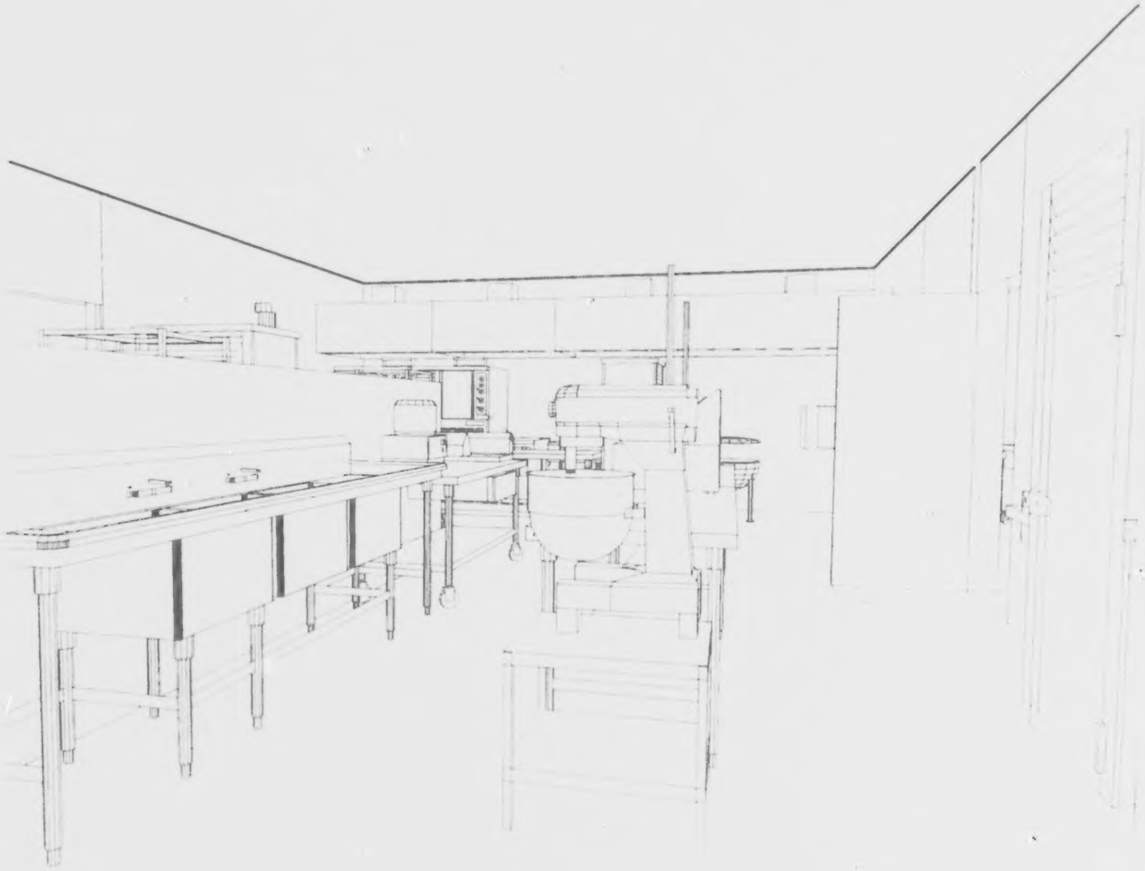
Chapter 1:

User's Guide



OVERVIEW

The purchase of new foodservice equipment begins with a vision of the kitchen with the new equipment installed and operational. The purchasing process requires thought and planning to meet rapidly changing customer and community expectations. Chapter 1 focuses on the process of clarifying your guiding principles. The guiding principles are the cornerstone of the decision-making process and should reflect the philosophy and goals of the school and community. Keep in mind that although CNP directors and childcare providers will find numerous references to parents, community, and teachers, the *Guide* is designed to serve as a reference for all foodservice professionals.

A follow-up identifies how your customers see your operation and how you can continuously improve the system. This includes a thought-provoking exercise to help you focus your planning on incorporating the guiding principles into all the decisions you make as you select and purchase foodservice equipment. The planning process is critical since the decisions may impact taxpayer resources, the health of students, and the overall financial integrity of the program. All purchases of foodservice equipment should follow the same basic decision-making process even though the size or scope of the project may vary. Strategies are provided to assist you in developing and executing critical path planning.

NEW CONSTRUCTION
RENOVATION
REPLACE

Beginning With the End in Mind

The CNP director's professional life is fast paced and often overwhelming. School districts are rapidly changing to meet customer and community expectations. How does the CNP director have time to tackle the purchase of new foodservice equipment, let alone have time for a thorough planning process?

Stephen Covey, author of *Seven Habits of Highly Successful People* (1989) recommends starting with the end in mind. "Beginning with the end in mind" (p. 99), is based on the principle that all things are created twice. "There's a mental or first creation, and physical or second creation to all things" (p. 99).

Take the construction of a new school for example. The planning team creates every detail to reflect the philosophy and goals of the school and community before ground is ever broken. Covey states, "the extent to which you begin with the end in mind often determines whether or not you are able to create a successful enterprise" (p. 99).

The *only* way to ensure that the foodservice equipment purchased will meet the future needs of the school foodservice program is to incorporate a well thought-out plan. This is a responsibility that every project team must take seriously since decisions impact taxpayer resources, the health of students, and the overall financial integrity of the program.

A Guide for Purchasing Foodservice Equipment was written to help you work through the process of selecting and purchasing new foodservice equipment. You will want to use it in conjunction with *The New Design Handbook for School Food Service* (1997) if your project includes layout and design. Think of **A Guide for Purchasing Foodservice Equipment** as your road map down the Purchasing Parkway. Exits off the Purchasing Parkway will lead you in specific directions. If you are building a new school, look for the Highway of New Construction. If you are renovating an older school, look for Renovation Road. If you are replacing or adding selected pieces of equipment, look for Replacement Drive.

Regardless of your past professional experience or your fork in the Purchasing Parkway, your ultimate goal is to purchase foodservice equipment that:

- meets customer expectations
- incorporates flexibility
- addresses long-range needs of the school system
- facilitates regulatory compliance

Developing A Mission Statement

Do you have a mission statement for your program? If you do, pull it out at this point. Your equipment purchasing decisions should reflect your program mission. If you do not, consider developing a mission statement.

How long does a good mission statement have to be? There is no right or wrong answer. The best approach is to think of it as an advertisement of beliefs and intents—nothing more, nothing less. The statement will serve as the catalyst for your success. As such, it is rarely more than a couple of pages in length. The bottom line is that the mission statements of your school district and your program are valuable documents. Once approved, the mission statement should be posted and discussed with school foodservice personnel. Remember that the mission statement is the premise for all decisions.

How is a mission statement developed? One effective way is to create and distribute a questionnaire that focuses on key criteria. In *Keeping the Best,* Martin Yale (1991) suggests that focusing on these criteria will form the foundation of the mission:

- What do we do for a living?
- When do we do it?
- Why do we do it?
- For whom do we do it?
- Why are we in this field?
- Where do we want to go?
- What do we want to achieve?

Once the initial criteria are addressed, ask these questions to help draw all foodservice professionals to the same point:

What business are we in, and why are we in it?

What business should we be in, and why?

What is unique about us?

What trends are changing school food service?

Does technological development in our industry threaten us or offer us new opportunities?

Who are our customers? Are they a growing or shrinking entity, and why?

What do our customers really want? How do we know this?

What are our competitors doing?

How does school food service improve the lives of our customers?

Will these same foodservice systems still achieve these benefits one year (two years, five years) from now?

How has our business changed in the last five years?

What are we doing to attract and retain staff to our program? What can we do better in employee relations?

What is our commitment to: students, employees, parents, administrators, staff, the board of education, suppliers, the local community, and society at large?

Getting Started

The first thing to remember is that you are about to embark on a journey down the Purchasing Parkway. In *First Choice,* Marlene Gunn (1995) points out, "critical path planning allows the school purchaser to keep the process organized. Purchasing (equipment) is not part of the daily work schedule, so it is easy to forget a task at the appropriate time" (p. 48). She further points out that when planning critical paths, start with the date of first delivery and work backwards.

You will not reach your destination at the end of the Purchasing Parkway in a day or two. It will likely take you months or even years to complete the critical path planning process. The process will give you an opportunity to:

- assess the needs of the program
- read the *Guide* as needed and consider the options
- consult the experts, consultants, advisors, and peers
- consult your school food authority
- complete the self assessment including program profile (chapter 4)
- visit schools with a similar design or vision
- visit foodservice equipment testing labs or trade shows
- select the equipment
- issue or "let" the bid
- award the bid
- receive the equipment
- install the new equipment
- train your employees on the safe use and care of the equipment

If that sounds like a long trek ahead, with some potholes along the way, you are right. Rest assured, though, that the trip will be interesting and exciting.

A Guide for Purchasing Foodservice Equipment will help you look ahead for the potholes and guide you around them. It will bridge your knowledge with the advice of experts in the field. It will even serve as an industry standard for you to present your plan to the school system administration.

Have you noticed that everyone seems to have an opinion about how the new kitchen should be designed or about the selection of equipment to be purchased? Your experience is not unique. You can expect school administrators, teachers, school support staff, community representatives, and school board members to have an opinion about how the final kitchen should look. Keep in mind that their perspective and priorities may not be the same as yours.

As you prepare for the journey ahead, remember:

- **You** and **your employees** have the greatest insight into what has and has not worked in the past.
- **You** have an understanding of your customer expectations that most industry experts do not have.
- **You** bring to the planning team a level of expertise that no one else from the outside brings.
- **You** are responsible for following all state, local, and federal regulations.

In other words, a basic principle of continuous quality improvement (CQI) is that those individuals working with a task or function are best equipped to make recommendations about the improvement of the respective function. The same principle is true for this decision-making process. Have confidence in your expertise and utilize past experience in the decision-making process.

At the Starting Line

1

Step one:

Take a deep breath and relax for a few moments. Everyone gets a bit anxious before starting on a long journey. The Purchasing Parkway is no exception. Being anxious will only cloud your thinking.

A Guide for Purchasing Foodservice Equipment is designed to walk you through each phase of the equipment purchasing process. It will help you:

- look at the big picture
- listen to new ways of meeting customer expectations
- identify the wide variety of industry resources available
- identify funding sources for the project
- make wise use of taxpayers' money
- develop and execute critical path planning

2

Step two:

Brainstorm to crystallize your vision of a completed process.

3

Step three:

Define the guiding principles for purchasing foodservice equipment. Whether you are building a new kitchen, adding or replacing foodservice equipment, the guiding principles are the foundation for all decisions. They are:

- knowing and meeting customer expectations
- building in flexibility to meet future needs of the program
- building in flexibility to meet future needs of the school system
- making prudent use of taxpayers' money

4

Step four:

Start the process described in the *Guide*! Remember to keep your eyes on the guiding principles. Don't lose sight of them. Let the guiding principles be the basis for your project goals and final decisions. Don't forget that other participants in the process may have different guiding principles and goals than you. Don't assume that everyone understands or shares your guiding principles and goals. It is your job to do the process correctly and to persuade the school system administration to embrace your guiding principles.

This next step is important in the process of "beginning with the end in mind" (Covey, 1989). You operationalize your guiding principles by brainstorming your vision of your foodservice system. The *NFSMI High School and Middle School Student Satisfaction Surveys* (1997) are tools to help you crystalize your vision. The surveys are also tools to help the CNP director continuously improve the program as perceived by the customer.

Your first guiding principle is knowing and meeting customer expectations.

How can I select the new equipment to best meet my customers' needs and expectations? Complete the following exercise.

Customers' Needs and Expectations Example:	**Identify Equipment That Will Meet the Needs of My Customers Example:**
Wide variety of food choices	Multi-use equipment supports choice
Flavorful food	Steamer will retain flavor
Attractively merchandised food	
Value priced meals	
Ethnic and cultural preferences	
Meal time schedules	

Traveler's Tip

The NFSMI High School and Middle School Student Satisfaction Surveys and survey guide will help you keep your focus on customer needs and expectations. Remember that the kitchen design or the selection of replacement equipment needs to be made with the customer in mind.

Your second guiding principle is building in flexibility to meet future needs of the program.

Flexibility means:

- the ability to easily move certain pieces of foodservice equipment
- the ability to use one piece of equipment for more than one cooking method
- freedom to expand, reduce, or reorganize your foodservice system when the customers' needs and expectations change

Brainstorm your vision of flexibility by asking yourself these questions:

What is the most annoying aspect of equipment that is currently found in my school district? (Feel free to list more than one.)

If I had a magic wand, how would I make the kitchen(s) more efficient?

What kinds of equipment have I seen in professional journals or at professional meetings that would add flexibility and broaden the scope of my current operation?

Would any of these pieces of equipment make my operation more efficient? If yes, how?

Traveler's Tip

Call professional organizations like the American School Food Service Association (ASFSA), The American Dietetic Association (ADA), and the North American Food Equipment Manufacturers (NAFEM) for help. A listing of resources is included in the appendix under Resources.

Your third guiding principle is building in flexibility to meet future needs of the school system.

Most school districts have a long-range plan to build, reopen, or close schools. This plan changes as the general population in the district changes, but it will address the vision of the school board and administration. In addition, the superintendent's office may have historical and projected enrollment numbers to establish district growth trends.

Ask yourself these questions to brainstorm your vision of meeting long-range needs:

How has the general population in my school district changed in the last five years? Are these changes a trend that will continue?

Are the changes in the population specific to various age groups? (For example: more young families may have moved to the area due to increased job opportunities.)

Will the changes in the general population impact the school district in the next five years?

Do we expect more students or fewer students in the next five years?

Are these changes in numbers of students specific to grade levels? (For example: more elementary students but fewer high school students.)

Is my school district planning to build, reopen, or close schools in the next five years?

Is my school district planning to convert schools from one level to another in the next five years? (For example: convert an elementary school to a middle school.)

Traveler's Tip

Ask the local Chamber of Commerce, Center for Economic Development, or your school district superintendent's office to help you answer these questions.

Your fourth guiding principle is making prudent use of taxpayers' money.

"Public sector purchasing has the added dimension of accountability to taxpayers for how funds are used" (Gunn, 1995, p. 12). In other words, your purchasing decision will be evaluated in the community's eyes by how well you have used tax monies. Remember that selecting the least expensive equipment available may *not* meet your customer expectations, provide flexibility, or meet your future needs. The process outlined in this guide will provide you with a due diligence path to demonstrate accountability for taxpayers' resources.

Traveler's Tip

Purchasing the least expensive piece of foodservice equipment with the fewest options may not meet program needs. In turn, this is not always the best use of taxpayers' money.

Transforming the Mission and Vision Into Reality

Are you beginning to see how planning and guiding principles are important? Are you beginning to see the new kitchen in your mind's eye? Are you feeling more confident? Remember, knowledge is power. Hopefully you are making the transition from the excitement of the adventure into the serious planning of the journey. The **most important** thing to remember is your guiding principles:

- knowing and meeting customer expectations
- building in flexibility to meet future needs of the program
- building in flexibility to meet future needs of the school system
- making prudent use of taxpayers' money

Before you make any final decisions, be sure to ask yourself, "Is this decision consistent with the guiding principles?" If it is not, ask yourself, "How can I incorporate the guiding principles into my plan?"

Remember, if the guiding principles do not direct the decision-making process, the end product will not reflect your vision of success.

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Chapter 2:
Industry Trends

OVERVIEW

Child Nutrition Programs face challenges from external factors of commercial foodservice operations and from internal factors of design and operation constraints. In summary the challenges are:

- operating a foodservice program as a business within an educational arena
- successfully competing with the commercial marketplace
- providing quality foods that are nutritious and safe in an informative manner (nutrition education)

This makes school foodservice programs a living laboratory. These challenges result from eight trends that impact CNPs and their equipment purchasing decisions. This chapter is designed to give you several points of view to assist you in your critical path planning.

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Challenges and Changes

The foodservice industry as a whole is slow to change even when there are influences all around working to facilitate a change. It usually takes an *act of Congress* (and it literally does) to bring about change in school foodservice programs.

This chapter is designed to offer the traveler several points of view. Recommended readings are *Current and Future Directions of Child Nutrition Programs* (Bergenson et al, 1996) and the conference proceedings from *Trends: School Food Service in the Year 2000 and Beyond* (1992). You will find the comments of Louise O'Sullivan, who at that time was President of NAFEM and President of Groen, of particular interest. As you travel down the Purchasing Parkway, you will find no shortage of opinions. You should, however, seek the advice and counsel of industry resources. They will be an important source of information as you formulate guiding principles.

From an educational viewpoint, school enrollments are fluctuating. School administrators are building new schools, closing old schools, and renovating other schools to meet the needs of student populations. Changes in school foodservice programs resulting from current trends have taken on many forms. An overview of the literature has identified changes in the following areas:

- customer expectations and resulting menu offerings
- purchased food products
- commodity food products available
- serving systems
- production techniques
- foodservice equipment technology
- food and equipment distribution systems
- flow of information to the end user, i.e., school foodservice directors/supervisors, managers, technicians
- competition
- federal regulations
- labor pool availability
- CNP director's role in leading the program

With all these changes, has anything remained the same? YES! The mission of the National School Lunch Program and School Breakfast Program has remained the same — to serve nutritious meals to children. However, the way in which the mission is achieved has changed. As the introduction of the *High School Student Satisfaction Survey* (NFSMI, 1997) concludes, "Child nutrition programs today are much different from those of 1946...students today are more sophisticated and are exposed at an earlier age to a variety of types of food. CNPs today are competing with fast foods, vending machines, and competitive food sales for program participation." (p.v). In other words, we can expect that as long as there are CNP the way in which the mission is achieved will continue to change in order to accommodate changes in the customer.

The result is that equipment purchasing decisions will be made based on program profiles and planning for future demands of the customers. In chapter four, the program profile is developed.

Eight Trends Impacting School Foodservice Equipment Purchases

Trends impacting the CNP can be categorized as follows:

Trend 1.	Customer expectations
Trend 2.	Alternate food production systems
Trend 3.	New technology
Trend 4.	Food safety initiative
Trend 5.	Manufacturing of foodservice equipment
Trend 6.	Equipment distribution
Trend 7.	Changes in regulations governing CNPs
Trend 8.	Changes in the leadership role of the CNP professional

Let's identify how each trend may affect foodservice equipment purchasing decisions.

Trend 1 Customer Expectations

The customers have changed and will continue to change as they are influenced by the information age. Jeffrey J. Hallet, in his presentation titled *The Process of Change and How Education will be Affected* (Trends, 1992), points out the impact of having access to more than 300 channels of television. He notes "it means that access to and control over information and knowledge is being driven right down to the individual at a small group level" (p.1).

Consider, too, the impact of choice on the customer – entertainment choice, dress choice, commercial foodservice choice. This commercial marketplace influence is reported in results from major findings of the *High School Foodservice Survey* (NFSMI, 1997). Students have higher expectations resulting from their dining-out experiences. Their expectations demand a wider variety of foods, better quality, increased foodservice choices, and an enhanced dining atmosphere. Menu demands include healthier foods, more "ethnic" menu items, and retail appeal.

Customer expectations drive changes in menu offerings, menu merchandising, program marketing, production techniques, form of purchased food, and serving systems. Student customers whose expectations are not met will look to the competition for their food choices. Every CNP wants to keep customers.

The competition with commercial enterprise has motivated CNP directors to respond to the trends in displaying and serving foods. Speed of service, however, will always remain a key factor regardless of the type of service. Seelye (1996) reported school foodservice operations will introduce innovative serving systems based on the expectations of more sophisticated customers.

Innovations in serving systems will impact equipment purchase decisions. Serving systems such as:

- **Food court concepts**
  students select from various specialty stations (as observed in local shopping malls) such as burger and fry bar, salad bar, pizza bar

- **Retail, commercial, and/or self-branding foods**
  popular branding of fast food items or self-branding which usually includes school name or mascot (example: Bulldog Burger)
- **Kiosks**
  a small, free-standing structure with one or more open sides used for point-of-service and point-of-sale
- **Packaged "componentized" meals**
  prepackaged, reimbursable meals, pick-up and go, i.e., sandwich and fruit
- **Food boutiques**
  a retail activity zone where specialized foods and meal components are served
- **Marché concepts**
  based on European open-air marketplaces, the emphasis is on visual display, exhibition preparation, and random points of service

The long term trend in school foodservice programs will be a blend of self service and operator service with greater showcasing of food. This will include visible line-of-site preparation areas allowing for some part of the food preparation to be seen and appreciated by the student customer.

Rounding out Trend 1 is the desire for foodservice operations to expand the use of school kitchens to prepare meals for non-student populations. If your program provides meals to groups outside of the school population or is considering it in the next five years, you have an additional set of customer expectations to address in your purchase of foodservice equipment.

Remember the guiding principles. The challenge is to make equipment purchasing decisions with flexibility to meet future needs of your customers. This will allow operations to handle incoming fads and long-term trends while maintaining operation viability.

2

Trend 2 Alternate Food Production Systems

The United States Department of Labor's November 1997 monthly survey reported a jobless rate of 4.6 percent (Pine, 1997). This is the lowest monthly jobless rate since October 1973. When the national jobless rate is low, the foodservice industry usually experiences a shortage in qualified labor in many geographic areas. As this occurs, strong consideration will be given to centralized management and centralized production facilities. Centralized food production may be as small or as large as the demands require. In addition, the systems may accommodate a single food item or a group of items such as bakery offerings or basic sauces. These systems may also handle the production of all food items. Programs considering centralized food production systems must consider these factors in the decision-making and value-analysis process:

- make vs. buy
- labor availability and cost (including benefits)
- menu flexibility requirements
- cost control demands
- space demands
- quality control and "fresh prepared" expectations

Once a decision is made to use a centralized food production facility, the next step is to select a food transportation system. Factors to consider in analyzing a transport system for hot or cold foods include:

- **satellite rethermalization capabilities**
  Is there equipment located at the school site to reheat food that is transported cold?
- **geographic boundaries, transportation times**
  Are the satellite school locations geographically close enough to transport food in a reasonable length of time while maintaining food in the appropriate hot or cold temperature zones?
- **temperature retention and food safety considerations**
  Is transport equipment available to maintain appropriate hot or cold temperatures during the length of transportation to satellite schools?
- **labor availability**
  Are qualified personnel available to transport food, receive food, finish preparation, and serve food items?
- **cost**
  What is the initial start-up expense of a food transport system?

Programs selecting a chilled food system have a variety of methods to consider:

- **blast chill**
  Foods are rapidly chilled by circulating cold air bringing the temperature from the appropriate internal temperature to 34° F within 90 to 120 minutes (commonly solid foods larger than 2 inches in diameter). This method is also used when smaller

production needs are required on a variety of menu items.

- **water bath chill**
  Foods are rapidly chilled by circulating cold water in a contained tank bringing the temperature from appropriate degree of doneness to 34° F within 90 to 120 minutes. Items chilled are placed in plastic bags and securely closed. Liquid or partial liquid food items such as soups, stews, gravies, and sauces are chilled in tumble chillers. Meat roasts and whole poultry items may be chilled in bags in circulating cold water tanks.
- **combination system** (blast and water bath)
  Both types of chilling equipment are available to chill the appropriate menu item.
- **partial system**
  This method addresses automated packaging with hot transport or blast chilled with chilled transport.

Rethermalization methods will be implemented using conventional equipment such as combination ovens, convection ovens, steamers, kettles, and braising pans. Rethermalization can also be accomplished using specialized equipment such as controlled humidity cabinets.

In the coming years, you can expect variations of all types of systems to be implemented. There are no pure methods, and the needs of individual school systems vary.

Traveler's Tip

In new construction or a major renovation ask for a 3-dimensional drawing from the consultant/architect. Bringing the functional area alive helps many directors who feel a lack of confidence about the responsibility of purchasing equipment.

3

Trend 3 New Technology

There are any number of new technologies that will impact current and future pieces of foodservice equipment.

- **Combination oven-steamer**
  this equipment has been available but is just now gaining

acceptance. Available in either gas or electric, these "work horses" provide speed, higher yields, food quality, less handling, ability to cook more than one food at a time with no flavor transfer, and ease of cleaning.

- **Induction cooking**
  means instant heat with no open flames or hot spots (heats the food, not the kitchen) and it is easy to clean. Induction uses a magnetic field to "heat" the pan or pot while the unit itself stays cool. Look for induction cook tops, woks, griddles, and fryers.

- **Holding cabinets**
  may seem to be the lowest tech equipment in the kitchen, but there is news in humidity control. By properly holding and controlling food, the texture of the food is maintained. Not all cabinets are the same and you should test before you buy.

- **Boiler-less and variable-temperature steaming**
  provides speed and preserves color, texture, and nutrients. There are a few new steamers that create saturated steam without a boiler. This cuts water, energy, and maintenance costs dramatically.

- **Hot air tumble fryer**
  will produce very successful fries using a normal blanched fry with only 5% fat. An added benefit is that these fries can be reheated to fresh quality. Prices have fallen, but this item is still at a premium. However, if you also consider the oil, hood, and exhaust system savings, the payback can be relatively short.

- **Cooking with light**
  has the speed of a microwave, yet cooks and browns naturally. For now, this type of oven can be used to prepare special meals or meals at odd hours.

- **Combination convection-microwave oven**
  bakes a whole chicken in 18 minutes. You will find it has the speed of a microwave and the browning of a convection oven.

4

Trend 4 Food Safety Initiative

The practice of providing safe food makes good sense. With this in mind, the national implementation of a Hazard Analysis Critical

Control Point (HACCP) food safety system will eventually become enforced. It moves food safety from inspection to prevention. HACCP standards will influence all areas of the school foodservice operation such as:

- increased chilling requirements
- implementation of chilled food systems
- monitoring technology - method of tracking and documenting temperatures and times of food products whether in a cooking, chilling, reheating, transporting, or holding status
- greater emphasis being placed on the ease of cleaning and sanitizing of all equipment and supplies

Look for the food safety initiative to impact equipment purchase decisions. Expect an increase in computer temperature tracking. This computer technology will provide a vital data link to monitor temperatures from the delivery of food products through receiving, production, and service. These data are an integral part of due diligence that is required to certify safe food.

5

Trend 5 Manufacturing of Foodservice Equipment

Manufacturers face a substantial challenge. They want to produce quality equipment with value-added features while maintaining profitability. In turn they are expected to offer the equipment at an affordable price, even though the cost of manufacturing is very expensive. Few manufacturers use robotics. As a matter of fact, most foodservice equipment is made by hand including hand welding and hand polishing. Manufacturers address this challenge by implementing cost reductions and developing advancements. In many cases, the cost reductions become an enhancement.

Manufacturers strive to provide equipment that will withstand constant use by a variety of employees. Also, they strive to provide the most reliable component parts not only for the benefit of their customers but also to reduce warranty costs. For example, the trend to move to electro-processor based controls from electro-mechanical controls will become the standard. Electro-processor based controls may be seen as digital read outs, touch pads, and computer programming options.

These controls have become more reliable and multi-functional, and they require a smaller housing. The enhancement results in a smaller piece of equipment with the same or greater production capacity.

The trend toward manufacturing equipment with built-in maintenance operations will be observed across the board in many types of equipment. As it becomes a value-added feature, it will also reduce warranty cost.

Manufacturers have learned that not everything has to be made of metal and stainless steel to exist successfully in a kitchen environment. New materials are being developed and used that are recognized as safe and more reliable. This cost reduction also becomes an enhancement.

Manufacturers continue to meet the growing demands on environmental concerns. These concerns include energy usage, air quality, water quality, and water use. Other concerns involve the work environment. Examples may include better safety features for the protection of the operator and better insulation to enhance the working climate.

Manufacturers are responding to the needs of a diverse workforce and are offering universal or multilingual labels. Other trends in technology will emphasize interactive information — integrating point of sale (POS), production, and food safety monitoring functions.

Manufacturers are introducing new types of production and service system equipment that will:

- meet customer expectations for food quality
- incorporate flexibility for changing needs
- require fewer employees to operate

Manufacturers are not bound by "the way we have always done things." As a matter of fact, you may find a manufacturer that is willing to custom-design a piece of equipment to meet your innovation. Equipment design engineers are continuously developing and testing new foodservice systems to meet the needs of the everchanging foodservice environment. The manufacturer's representative is a key player in identifying solutions to your equipment purchasing needs. Other sources of information include online resources, foodservice equipment shows, and professional journals. Foodservice equipment testing facilities also give you an opportunity to "test drive" the equipment before making a final purchasing decision.

6 Trend 6 Equipment Distribution

Once foodservice equipment has been identified for specification, a source of distribution must be found. The channels of equipment distribution are changing. Traditionally, all foodservice equipment was purchased through a foodservice equipment dealer. Now other channels are available. For example, foodservice equipment can be purchased through a food distributor (broadline distributor) or directly from the manufacturer. If one of these channels is used, the dealer will be bypassed. The channel of distribution chosen by the school district will depend upon the specific needs of the purchaser, the accessibility of each option, and the experience of the buyer. The channels of distribution are discussed in detail in Chapter 3.

7 Trend 7 Changes in Regulations Governing CNPs

The influence of regulations can affect equipment purchase decisions. For example, the United States Department of Agriculture has integrated the 1995 Dietary Guidelines for Americans into the CNP. The *School Meals Initiative for Healthy Children* (1995) requires the school lunch program over a week to:

- limit total fat to 30 percent of total calories
- limit saturated fat to less than 10 percent of total calories
- reduce the levels of sodium and cholesterol
- increase the levels of dietary fiber

Careful selection of foodservice equipment can be expected to enable compliance of the regulations by incorporating preparation methods to reduce fat.

Regulations may also impact the foodservice equipment purchasing decision in the following ways:

- Production methods are determined by the U. S. Dietary Guidelines.
- Regulations on food safety and sanitation standards determine the required rate of rising or falling temperatures, hot-holding, and cold-holding capabilities.
- Regulations on environmental standards determine ventilation requirements, energy efficiency, and disposal of waste.
- Regulations on building codes and local health department codes may also impact the choice of foodservice equipment.

Regulations need to be considered early in the equipment purchasing process because they can limit the choices available to you. Each CNP director must take responsibility to meet regulations and codes.

8

Trend 8 Changes in the Leadership Role of the CNP Professional

The CNP director plays a crucial role in guiding the foodservice equipment purchasing process. It is up to the CNP director to lead in the decision-making process. Keep in mind:

- **You and your employees** have the greatest insight into what types of equipment have and have not worked in the past.
- **You** have survey tools from NFSMI to determine customer expectations of the CNP.
- **You** have an understanding of the regulations governing the school foodservice program that no one else from the school system or outside the school system has.
- **You** bring to the planning team a level of expertise that no one else from the outside brings.
- **You** must convince the other interested parties that your guiding principles reflect what is truly best for your program.

These trends should demonstrate the challenge that each director has to operate the foodservice system as a business within the educational arena. Your job is to visualize the impact of each trend on your CNP in the next five years. The equipment purchasing decisions made today will impact outcomes from this point forward. The good news is that many resources are available. One of the most important resources is this *Guide* and the decision-making process it describes.

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Chapter 3:

View of the Equipment Industry

Chapter 3: View of the Equipment Industry

OVERVIEW

All new equipment must meet not only customer expectations but also industry standards for safety and quality. Chapter 3 discusses the primary safety approval agencies. In addition, you will discover the different channels of distribution and the roles professional associations play as resources to assist the purchase of equipment.

Foodservice equipment manufacturing is an exciting and dynamic business that represents the efforts of many players including engineers, safety experts and agencies, legal services, and marketing managers. Manufacturers are constantly looking for ways to build a better mousetrap. Their responsibility is to consider the customers' needs and expectations while working with research and development to formulate the concept. Marketplace needs are a major influence on research and development.

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The Manufacturer's Role

The process of concept development involves several steps. First, engineering takes the concept and builds it to meet customer expectations. Once prototype equipment is built, it is tested by safety agencies. Concurrently, the prototype equipment is field tested by customers who can provide a good application of the equipment. Next, the use and care manuals are written and then evaluated by legal services for clarity, legality of explanations, and safe use of the equipment. Some manufacturers are having their manufacturing processes and services International Standard Organization (ISO) 9000 certified. The ISO standards were developed by the International Standards Organization for manufacturers and service agencies as a means of defining quality manufacturing controls from concept to customer. Naturally, marketing efforts will include advertising, sales material development, and sales training. The cycle of development and testing is a substantial time and cost investment. This multi-year process can run into millions of dollars.

Safety and Quality Standards for Foodservice Equipment

In your evaluation of foodservice equipment, it is important to consider the safety standards that each piece meets and the requirements of your school system. The primary safety approval agencies are the National Sanitation Foundation (NSF), Underwriters Laboratory (UL), and American Gas Association (AGA). All three organizations provide third party conformity assessment services. Identification of their seal on a piece of foodservice equipment should provide a sense of security related to the safety of that piece as used by foodservice assistants. The cost of certifying safety standards of foodservice equipment is borne by the manufacturer. The safety standards specify the requirements for the products that include requirements related to materials, design, construction, and performance. The manufacturers' marketing materials include information on compliance with safety approval agencies.

Traveler's Tip

Some CNP directors report using odd pieces of residential equipment at a school. Be aware that they are not NSF approved and they are not accepted by most health departments. Do not replace equipment with residential models.

National Sanitation Foundation (NSF)
National Sanitation Foundation (NSF) is a non-profit organization dedicated to public health, safety, and protection of the environment. It develops safety standards focusing on cleanability and durability of products. In addition, NSF provides extensive education and third party conformity assessment services. The NSF standards define requirements for materials, design, construction, and performance necessary to meet the criteria of cleanability, food protection, and freedom from harborages. In order to receive the NSF certification, the product must conform to all NSF requirements. Once a manufacturer has met the NSF standards and documents that it can maintain certification, it is authorized to use the NSF mark on the products and in marketing materials.

American Gas Association (AGA)
International Approval Service (IAS) performs the certification commonly known as "AGA Certification." IAS is a non-profit accredited laboratory that sets equipment design and safety industry standards for gas-fired appliances.

The American Gas Association (AGA) is an association of almost 300 natural gas distribution, transmission, gathering, and marketing companies in North America. AGA's primary role is to seek to boost demand for natural gas through its role as a federal legislative and regulatory advocate for the gas industry.

Underwriters Laboratories (UL)
Underwriters Laboratories (UL) is a non-profit organization that provides a variety of certification tests to evaluate electrical appliances used in commercial cooking, refrigeration, food preparation, and food processing plants. UL listed products are tested for fire safety, shock, and casualty hazards.

Historically, UL only evaluated electrical appliances. However, the agency now offers manufacturers the options to certify gas-fired appliances for meeting AGA standards and electrical and gas-fired appliances for meeting NSF safety and sanitation standards.

This option offers the manufacturer a "one-stop-shopping" method of product certification. The benefits to the manufacturer include one location, one engineering staff, and one product submittal. Manufacturers have found this option a less expensive method of meeting safety requirements. A piece of foodservice equipment using the UL listing for product certification to meet NSF and AGA standards will have a seal of approval. Addresses and phone numbers of safety approval agencies are located in Appendix, p. A.7-9.

International Standards Organization (ISO)

The ISO 9000 certification is a series of standards sponsored by the International Standards Organization (ISO) which investigates processes such as quality systems to be established by manufacturing and service firms. It is an internationally recognized quality system standard. Many end users, operators, and consumers look for companies acquiring ISO 9000 series certification. They recognize that it means the standards are met from concept to customer.

Channels of Distribution

The manufacturer follows all of these review steps prior to the introduction of the equipment into the marketplace. The introduction phase is also substantial. Products are marketed using a variety of mediums including advertising, sales materials, sales training, equipment shows, and online services. Then manufacturers of foodservice equipment sell their products through various industry channels of distribution. This is a term that describes how the equipment makes its way from the manufacturer to the ultimate end-user. Within the school foodservice system, the final destination is the school or central kitchen.

Remember, the foodservice industry is competitive, and within the industry the channel of distribution is complex. Companies have escalated their efforts to increase their market share and expand their distribution channels. As the CNP director, you have many choices. Still, how can you be sure you have considered the best options as you travel down the Purchasing Parkway?

First, make sure you understand how each industry segment or point in the chain can help you achieve your ultimate goal. Each network segment plays a unique role in the marketplace and assumes various responsibilities. Remember that some organizations even function in more than one network segment. Table 3.1 outlines the channels of distribution from the manufacturer to the end-user. It's an excellent segment by segment overview of the industry and will serve as a road map during your journey down the Purchasing Parkway.

Table 3.1 Manufacturers' Distribution Network

Network Segment	**Marketplace Identity**	**Primary Roles and Responsibilities**
Independent Manufacturer Representatives	■ Independent organizations that represent more than one line of non-competing products ■ Cover large geographic areas ■ Salary based on commissions set by manufacturer ■ Rarely take title to the goods that they are selling	■ Eyes and ears of the manufacturers, determine customer expectations ■ Educate other members of distribution network on several manufacturers' product lines and services ■ Provide sales quotes ■ May play a role in installation, on-site demonstration, and staff training ■ May trouble-shoot some service problems
Company Direct Sales Force	■ Employees of manufacturer ■ Only represent one manufacturer's product line in the marketplace	■ Eyes and ears of the manufacturers, determine customer expectations ■ Educate other members of distribution network on their manufacturers' product lines and services ■ Provide sales quotes ■ May play a role in installation, on-site demonstration, and staff training ■ May trouble-shoot some service problems
Stocking Distributors	■ Independent organizations that represent more than one line of non-competing product lines ■ Will take title to the goods they are selling	■ Educate other members of distribution network on their manufacturers' product lines and services ■ Provide sales quotes ■ May play a role in installation, on-site demonstration, and staff training ■ May provide service and repair for all items sold ■ Usually sell a specialty item geared to a specific market niche

Table 3.1 Manufacturers' Distribution Network

Network Segment	**Marketplace Identity**	**Primary Roles and Responsibilities**
Equipment & Supplies Dealers	■ Historically positioned as the "channel captain" within the channel of distribution ■ Internal and external sales forces represent many competing product lines	■ Educate end-users/operators about all manufacturers' product lines and services ■ Make recommendations to end-user based on needs assessment ■ Provide sales quotes ■ Determine product availability ■ Install products, provide on-site demonstration, and staff training ■ Provide service and repair for all items sold ■ Supply all "buy-out" items
Broadline Distributors	■ Large food distributors ■ Expanded product line includes food, supplies, and foodservice equipment	■ Provide a range of services similar to equipment dealers except that they sell primarily food rather than equipment ■ Have buying power and leverage to provide highly competitive pricing
Fabricator Dealers	■ Intermediary organization whose job is to coordinate the installation of new or renovated kitchens ■ Design services	■ Supply all "buy-out" items ■ Fabricate stainless steel counters and workstations ■ Provide complete installation and start-up of all equipment and supplies ■ Some provide complete kitchen and front-of-the-house design services and perform the role of foodservice equipment contractor
Wholesale Clubs	■ Source of foodservice supplies and some equipment	■ Expansion of a consumer market into foodservice supplies ■ Emerging segment of channel of distribution
Foodservice Design Consultants	■ Design complete foodservice systems	■ Provide layout and design expertise to end-user ■ Recommend equipment and supplies to meet the goals of the end-user ■ Write specifications

Traveler's Tip

CNP directors who have experience working with foodservice design consultants recommend that the consultant work for the director and not the architect. In this way directors can indicate more effectively what they want and need.

Service Agency

No matter which channel of distribution you choose, all purchases must be linked to a service agency. The primary function of the service agency is to repair faulty or inoperative equipment from many different manufacturers. They may also manage warranty claims. Most manufacturers train service agency personnel on the proper repair and maintenance procedures for all pieces of equipment they manufacture. In addition, manufacturers may employ service agencies to install their equipment or inspect installation done by other intermediaries. Expect additional costs if you are located in a rural or hard to access area. Be sure to discuss the role and expertise of the service agencies as you consider various channels of distribution. Don't be caught at a road block in the Purchasing Parkway.

Traveler's Tip

Keep in mind the primary business of the expert or advisor. Seek advice from the most appropriate source.

Professional Associations

As you consider the benefits and features provided by the different channels of distribution, you will want to utilize the resources provided by numerous professional associations. Table 3.2 outlines the mission of each professional association. The address and phone number of each professional association is located in Appendix, p. A.7-9.

Table 3.2 Professional Associations

Professional Association	Mission or Major Goals
North American Association of Food Equipment Manufacturers (NAFEM)	To develop, promote, and communicate cooperative programs and activities that will improve the level of professionalism and provide a vehicle for broadening knowledge of members and affiliates within the global foodservice equipment and supplies industry.
Manufacturers' Agents for the Foodservice Industry (MAFSI)	The primary interest group of independent manufacturers' sales representatives. Its goals address education, public relations, industry planning, and strategic alliances.
Foodservice Equipment Distributors Association (FEDA)	The primary interest group of the equipment and supplies dealers. Its goals include setting industry standards for dealers and acting as an educational voice.
Foodservice Consultants Society International (FCSI)	To promote professionalism in foodservice and hospitality consulting while returning maximum benefits to all members.
Commercial Food Equipment Service Association (CFESA)	The ongoing mission of CFESA is to continually enhance the original vision of its founders by providing services and education that enable members to ensure the satisfaction of their customers while improving the proficiency of their businesses. In addition, CFESA will provide opportunities for its membership to promote their image and interests within the food equipment industry.

Traveler's Tip

As you travel down the Purchasing Parkway you will want to collect business cards from professional representatives, with whom you come in contact. This will help you pinpoint who is who and provide a quick reference source.

The equipment manufacturers, safety certification organizations, distribution network, and service agencies all play an important role in providing information and service to you and your organization. You will want to avail yourself of all the professional service and association representatives in your community.

References for Chapter 3

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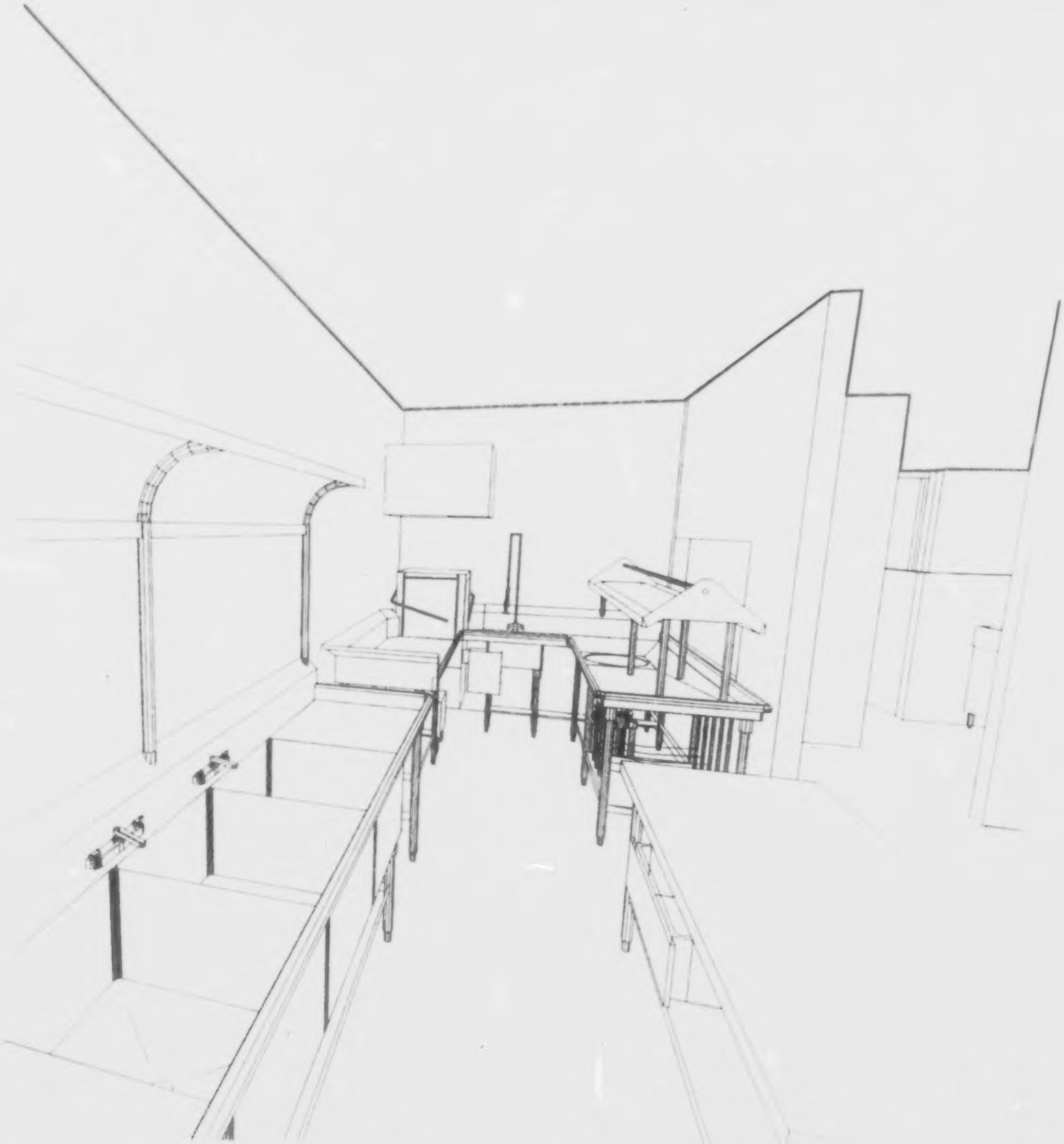
Chapter 4:
Project Planning



Project Planning

Chapter 4: Project Planning

OVERVIEW

Having taken an in-depth look at the industry, project planning is the next phase of the purchasing process. This is the time to formulate decision-making pathways and to develop some preliminary details. Most project planning is directed by the CNP director in conjunction with a team of organizational representatives and industry advisors. The cornerstone of project planning is the program profile or data collection tool. The profile documentation and guiding principles will be the foundation for equipment purchasing decisions.

Chapter 4 provides a thorough program profile tool for the project team to complete. Remember the program profile is designed to support your planning process. This tool is designed to ensure your equipment purchasing decisions are analytically sound and in the best interest of the foodservice program.

In addition, Chapter 4 includes strategies for choosing team members for the project and tactics to build a bridge of understanding to other team members. The team will make decisions that will impact the CNP for years to come.

NEW CONSTRUCTION
RENOVATION
REPLACEMENT

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Preliminary Steps

The journey down the Purchasing Parkway is becoming a reality. Let's review where you have been:

- You have completed brainstorming and crystallizing your guiding principles.
- You have talked with industry advisors about your needs and expectations.
- You have looked at the big picture.

Now you will want to:

- Talk with colleagues and team members about your vision for success.
- Visit other schools to see desired equipment in action.

Now it is also time to put some facts on paper and really see how the journey is going to take shape. This is the time to formulate decision-making pathways based on your need to replace equipment, renovate a school(s) or undertake a new construction project. The experts call this phase *project planning*.

Project planning is the time to put all of your ideas on paper and begin to establish the planning strategy. If you are like most CNP directors, you are saying at this point, "I don't have time to get everything completed on my to-do list now. How do I have time to work on this plan?" The bottom line is, you cannot afford *not* to participate in this process. It all comes down to two important reasons. First, you want this purchase(s) to be right. It is a big responsibility that surely you take seriously. Secondly, you want your guiding principles to prevail over the numerous others who will be trying to influence the final decisions. Having your travel plans in order is the single best way to persuade others that the equipment type, specification, or even brand is best suited for your kitchen and program. The time investment will pay substantial dividends.

Traveler's Tip

When undertaking a renovation or replacement project require the dealer to visit the site in person in order to qualify as a responsive bidder. There are many details to consider: hood size, connections, utilities, etc.

Experts recommend using a team approach for collecting and analyzing the program profile. The profile documents information that will influence all equipment purchasing decisions and reflect all facility requirements. This is a critical planning step because:

- budgets are often based on the program profile
- operational functions are determined through the process
- it reflects your guiding principles
- it is a tool to inform school officials

A Guide for Purchasing Foodservice Equipment has designed the project planning section in a short answer format for easy reference and use. The scope of the project will determine the size of the team used to prepare the program profile. New construction projects will have the largest teams while equipment replacement projects will have the smallest.

ORGANIZING THE TEAM

The first step in project planning is to pull together a team to compile and analyze the program profile. Give careful consideration to selecting each team member. Remember, the Purchasing Parkway is a long and sometimes winding road. Your team members will be your traveling companions for the weeks and months ahead. Look for the team members with these qualities:

- **driver-** someone who can take the lead even in stormy weather
- **navigator-** someone who can read the map and interpret the data including specification sheets
- **problem-solver-** someone who can redirect the team when a wrong turn is made
- **visionary-** someone who can see the "big picture" and help direct the team

Some individuals may serve more than one function on your team!

Traveler's Tip

According to *The New Design Handbook for School Food Service,* teams should "always include the people responsible for planning and building the facility, and the people who are responsible for its day-to-day operation."

Most foodservice equipment purchasing teams will have designated members. Don't reinvent the wheel. Use professional networking and the expertise of your state agency personnel for advice and counsel. The scope of the project will determine the final composition of the team. Here are some individuals who may make up the teams:

Table 4.1 Project Teams

New Construction	Renovation	Replacement or Addition
CNP Director	CNP Director	CNP Director
Site Staff	Site Staff	Site Staff
District Superintendent/designee	District Superintendent/designee	District Superintendent/designee
School Administrator	School Administrator	School Administrator
Local Code and Regulatory Agencies	Local Code and Regulatory Agencies	Local Code and Regulatory Agencies
Health Department	Health Department	Health Department
School Board Member(s)	School Board Member(s)	
Architect with Engineering and Specialist Consultants	Architect with Engineering and Specialist Consultants	
Foodservice Consultant	Foodservice Consultant	Foodservice Consultant
Customers	Customers	
Parents	Parents	
Interior Designer	Interior Designer	

Start at the Beginning

Equipment purchasing teams will travel together in clear and cloudy weather. It is important that team members build strong bonds of respect for each other. Effective teams start with a vision of desired end results. This means commitment to the guiding principles, optimal performance, and good morale. Take time to thoroughly orient the entire team. Effective teams also achieve the desired end results through team member empowerment, strong team member relationships, effective team communications, and an ability to recognize and appreciate team member contributions.

As the CNP director, you have the clearest vision of the guiding principles directing the project. You can be sure that not everyone on the team will agree with your ideas on each section of the program profile. Be prepared to explain the end results of each decision. Be alert to whether a decision is consistent with the guiding principles. Remember, focusing on the guiding principles takes the personal opinions out of the discussion.

Traveler's Tip

You may want to standardize equipment purchased for the district. The benefits include: known expectations, standardized parts and service, implementation of preventive maintenance program, replacement with like items, and facilitation with employee cross training.

Strategies for Success

Team members can be troublesome companions as opinions differ and the wish list stretches beyond the capacity of the budget. Here are some strategies to help you build a bridge of understanding to other team members. At each team meeting:

- focus on common ground – everyone should be pleased to be in a new school, to have a new kitchen, or to have new foodservice equipment
- review the guiding principles directing the project
- take every opportunity to thank participants
- take all team communications professionally, not personally

- face conflicts, resolve them, and then forget about them – stewing will only make matters worse
- take clear, concise minutes of all meetings to document team members' responsibilities and all decisions made

The following form, **Program Profile**, will help you gather information and organize the information so that the equipment purchase decisions are analytically sound and in the best interest of the foodservice programs. Section IX., p. 4.11 has been completed to provide an example. A master copy of the Program Profile can be found in the Appendix pages A.57-70.

The gathering of this information will help confirm the desired end result of the foodservice program provided by a particular facility. Whether you are planning for new construction, full or partial renovation, or adding and replacing equipment, you should complete this form. The results will be the development of an operational model of the foodservice facility.

Traveler's Tip

If your project is a new kitchen in an operating school, be sure your preliminary plan includes ways to serve meals during the construction process – especially if you are planning a "kitchen shutdown."

PROGRAM PROFILE

I. RESPONSIBILITY FOR DESIGN, CONSTRUCTION, OPERATIONS			
Project Name	Phone	Fax	E-mail
Address			
School District			
Project Coordinators			
Address			
Address			
Architect			
Contact			
Address			
Food Service Consultant			
Address			

Program Dates:

Design Completion: Construction Start:

Bidding: Construction Completion:

Foodservice Facility Budget: (attach)

Approval procedure: (Note here the steps in the approval procedure, dates, contact names, and numbers)

II. CUSTOMER POTENTIAL

Grade Levels ____________________ Student Ages ________________________

School Capacity __________________ Projected Enrollment ________________

Location of School: Rural ____________ Urban ____________ Suburban ____________

Meal Service Offered: (Check all that apply)

☐ Breakfast
☐ Lunch
☐ Snack Programs
☐ Meals on Wheels

☐ Extended School Care
☐ Community Meal Service
☐ Senior Citizens Program
☐ Other ____________________________

Anticipated Maximum	Daily Customer Count		
	Breakfast	Lunch	Other
Students			
Teachers/Staff			
Others			

III. MEAL SERVICE INFORMATION

Number of Breakfast Periods __________________ Length of Session __________________

Number of Lunch Periods ____________________ Length of Session __________________

Block Class Scheduling	☐ Yes	☐ No
Continuous Service	☐ Yes	☐ No
Open Campus	☐ Yes	☐ No
Student Canteen	☐ Yes	☐ No
Other	☐ Yes	☐ No

Hours of Service:
Breakfast __________________
Lunch __________________
Other __________________

Maximum Seating at One Time ____________________

IV. TYPE OF KITCHEN

- ☐ On-site production and serving
- ☐ Finishing: finish production and serving
- ☐ Central: production only
  - ☐ Full menu items
  - ☐ Specialized menu items (list) ______________________
  - ☐ Bakery items
- ☐ On-site production for outside serving and satellite locations

	Number of meals served		
Satellite School/Location	Breakfast	Lunch	Other

- ☐ Satellite receiving and serving
  - ☐ Bulk hot
  - ☐ Bulk chilled for heating and serving
  - ☐ Pre-plated
    - ☐ Hot
    - ☐ Chilled for reheating and serving

V. TYPE OF PRODUCTION

- ☐ Cook and serve
- ☐ Chilled food system
  - ☐ Blast chill
  - ☐ Blast freeze
  - ☐ Water bath chill
  - ☐ Combination system
- ☐ Rethermalization system
  - ☐ Conventional equipment
  - ☐ Specialized equipment
- ☐ Other

VI. MENUS

Choice ☐ Limited choice

Self-service bars (like salad or taco) ____________________

Branded menus (list) ____________________

____

Menu specialization (list) ____________________

____

VII. TYPES OF FOOD SERVICE

Serving methods
- Traditional straight serving line
- Scatter or scramble
- Self-service, specialty bars
- Food court
- Kiosks and/or multiple decentralized areas
- Mobile units/carts
- Marché concepts
- Window-style service
- Vending machines in foodservice area
- Other (specify) ____________________

VIII. DINING AREA

Inside facility   Outside facility   Both

Seating capacity

Common area ____________________

Dining room ____________________

Facility/Staff dining room ____________________

IX. INFORMATION FOR STORAGE

Decisions on the following will influence type of storage and equipment required.

Begin with 100% of each product category and break down the percentage as it applies.

Meat/Meat Alternate Items - indicate % of use

List	Fresh	Frozen to cooler	Frozen to cook
Chicken products	0%	100%	0%
Fish products	0%	0%	100%
Ground beef	10%	90%	0%
Ground pork	0%	80%	20%
Ground turkey	0%	90%	10%
Hamburgers	0%	0%	100%
Turkeys	0%	100%	0%
Pizza	40%	0%	60%
Sandwich meats	0%	100%	0%
Convenience items	0%	30%	70%
Other			

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IX. INFORMATION FOR STORAGE (cont.)

Vegetable Items - indicate % of use

List	Fresh	Frozen	Dehydrated	Canned
Green vegetables				
Onions				
Potatoes				
Root vegetables				
Other				

Fruit Items - indicate % of use

List	Fresh	Frozen	Dried	Canned
Oranges				
Apples				
Bananas				
Juices				

Bakery Items - indicate products to be used and method of preparation

List	Basic (raw) ingredients	Mixes	Frozen	Ready-to-serve
Bread (sliced, loaf)				
Rolls				
Muffins, biscuits				
Pastry, cookies				
Buns				
Other				

IX. INFORMATION FOR STORAGE (cont.)

Liquid/partial liquid items – indicate % of use

List	Raw to ready	Bases	Canned	Frozen	Chilled bags
Chili					
Sauces					
Soups					
Stews					
Other					

X. STORAGE INFORMATION

Length of storage periods is directly related to the purchasing procedures of food and supply products. The agreed upon delivery schedules from the food and supply product vendors may determine the length of storage periods. The length of storage may also be a result of available space coordinated with the product vendors.

Type of Storage	**Length of Storage Periods**
Refrigerated	Maximum Period
Meat and Poultry (34° F)	days
Fruit and Vegetables (38° F)	days
Dairy (34° F)	days
Freezer (0° F)	days

Dry Storage Requirements:

Check all disposables to be put in dry storage area:

Straws Napkins Hot cups Cold cups Bowls Eating utensils
Plates Trays Pan liners Sandwich wrap/bags
Aluminum foil pans Other ______________________________

Type of Storage	**Length of Storage Periods**
Dry Storage	Maximum Period
Staples 60° F	days
Paper goods - routinely used products	days
Emergency disposables	days
Cleaning supplies	days
Other foodservice items	days

X. STORAGE INFORMATION (cont.)

Special Requirements for Storage

Type of Refrigeration Equipment

Refrigerator:		
Reach-in	single, double	Walk-in
Reach-through	single, double	Walk-through
Freezer:		
Reach-in		Walk-in
Ice cream cabinet		Milk shake machine
Ice machine		Soft-serve machine

XI. SERVING AREA CONSIDERATIONS

Will cashier computer terminals be used? Yes No

Computers linked to a network? Yes No

Location of server: ______________________________

Methods of payment: Cash Tickets Computer cards Other

Will special merchandising be required in serving area? Yes No

Menu boards Signage Other ____________________

Type of condiments provided: ______________________________

Location of condiments: Serving counters Condiment counters

Serving area Dining room Other ____________________

How will condiments be dispensed?

Pumps Portion packs Other ____________________

Beverages to be offered and how dispensed: ______________________________

Extra purchase items to be offered and how dispensed: ____________________

____

Tableware:

Compartment trays, size __________ Flat trays, size __________

Dishes, permanent ware Dishes, disposable

Eating utensils, permanent ware Eating utensils, disposable

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XII. DISH/TRAY WASHING

Will students self-serve trays/dishes/flatware? Yes No

If yes: Full self-scrapping Partial self-scrapping

Sanitizing System:

Trays/Dishes/Flatware: Chemicals 180° F + hot water

Pots/Pans: Chemicals 180° F + hot water

Kitchen cleaning equipment: Hand Steam Hydro

Kitchen cleaning equipment located: Foodservice area Elsewhere

XIII. WASTE DISPOSAL

What size trash receptacles? ____________ How many? ____________

Preferred location for can wash and storage? ____________

Waste disposal systems to be used: Garbage disposal Compactor Pulper Cans/dumpster

Frequency of trash pick-up? ____________

Is trash storage space needed? Yes No

Recycling provisions: ____________

XIV. EMPLOYEE FACILITIES

Employee toilets and lockers:

Hand washing facilities/lavatories

Men's and women's facilities Number of lockers each ____________

Unisex facility Number of lockers ____________

Number of offices required? ____________ Person(s) per office? ____________

Office furniture and equipment requirements: ____________

____

Educational facilities: ____________

Will a clothes washer and dryer be needed? Yes No

Will a time clock be required? Yes No Location: ____________

XV. TECHNICAL INFORMATION

Available utilities:

- ☐ Gas
  - ☐ Propane
  - ☐ Natural
- ☐ Electricity
- ☐ Steam
- ☐ Water
- ☐ Sewer

Power specifications:

Electricity - voltage/phase

- ☐ 110-120/1
- ☐ 208/1
- ☐ 220-240/1
- ☐ 208/3
- ☐ 220-240/3
- ☐ 440-480/3

Steam: psi ________________ flow ________________

XVI. EQUIPMENT SELECTION MATRIX

Using your menu as the guide, select and check equipment to prepare menu items. Many menu items may be prepared by using several different types of cooking equipment. Select equipment based on the best quality cooking results, utility energy efficiency, and human energy efficiency. When completed, analyze the total number of checks per type of equipment item. The results should justify and direct the equipment selection.

This chart is not meant to be inclusive. Use the blank columns as necessary. Examples are provided.

Menu Items	Tilting Braising Pan	Griddle	Char-broiler	Steam-jacketed Kettle	Pressure-less Steamers	Pressure Steamer	Fryer	Convection Oven	Combination Oven-Steamer	Conveyor Oven	Range-top	

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XVI. EQUIPMENT SELECTION MATRIX (cont.)

Menu Items	Tilting Braising Pan	Griddle	Char-broiler	Steam-jacketed Kettle	Pressure-less Steamers	Pressure Steamer	Fryer	Convection Oven	Combination Oven-Steamer	Conveyor Oven	Range-top	

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XVII. OTHER CONSIDERATIONS

Will any existing equipment be used? ☐ Yes ☐ No

If so, local department of health may require:

- present location of item
- name of manufacturer
- model number
- all dimensions of item (length, width, height)
- utility requirements for connection
- school install or contractor installation
- any special requirements not listed above

Students with special needs that require unique preparation or serving equipment

Special requests for overall design

Facility designed for expanded capacity

Should facility be designed for future capacity

Description of innovations or experimental ideas which might be incorporated into the program

Method of procurement of equipment

Desired finishes for equipment and spaces

Equipment needed for each function

Reality Check Point

Hill County School District is experiencing rapid population growth after years of declining growth. The school board has developed the following three-year capitalized improvement plan:

Capitalized Improvement Plan	**Time Table to Completion**	**CNP Director Concerns**
Reopen Taylor Elementary Reopen Moore Elementary	12 mos. 18 mos.	Both schools have been closed for 12 years. Both schools have large inefficient kitchens. School board hopes to use existing equipment rather than buy all new equipment. Unemployment is very low in Hill County.
Enlarge Lockwood Elementary (double enrollment)	30 mos.	Production and storage areas are too small for projected capacity. Students have been surveyed and results suggest students expect higher quality foods.

The CNP director recognizes that the budgets will be limited and does not want to use any of the outdated equipment if possible. First the director/team must learn all they can about student population growth, school construction plan, the surplus equipment inventory, and possible alternate sources of funding. Next they talk with industry advisors, county inspectors and the general contractor about the renovation. They ask them to visit each site with them. Using their advice and all of the information they have gathered, they develop a program profile and select the equipment needed based on the menu and the constraints of each site.

The goal is to standardize three CNP operations. The director/team develop a plan for the flow of food and equipment that is similar in each school. They select the same basic production equipment for each school to streamline employee training and maintenance. The director/team has looked at the big picture for the school system and follows goals that are best for the local school district.

The CNP director has used the guiding principles and program profile information to direct the decisions. The equipment purchased is based on customer needs and expectations. They are planning for future growth by the decision to replace a worn out oven with one similar to the ones used in the current construction projects. They are making prudent use of taxpayers' monies by thoroughly planning out and analyzing all the facts about the program and then standardizing the operation.

References for Chapter 4

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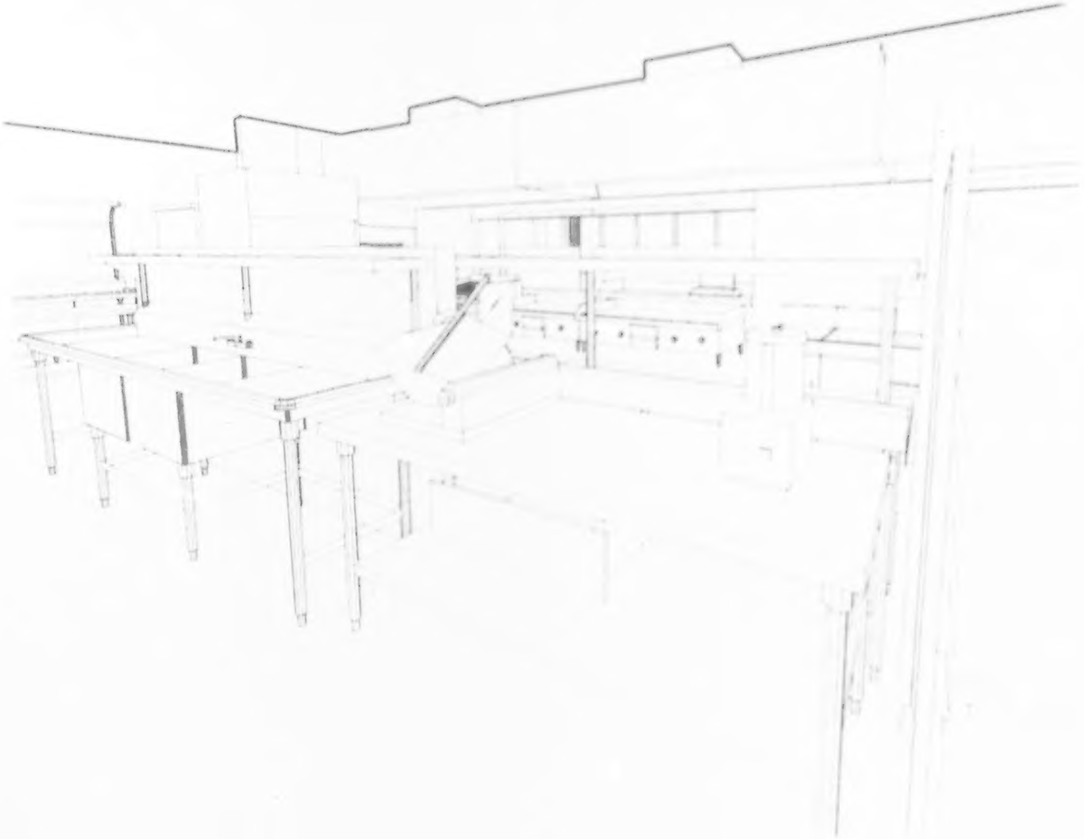
Chapter 5:
Equipment by Functional Areas



Chapter 5: Equipment by Functional Areas

NEW CONSTRUCTION

OVERVIEW

Foodservice equipment manufacturers design equipment to meet the needs of many different types of foodservice systems. Manufacturers vary on features that are standard to their equipment design. While some features are standard for one manufacturer, the same feature may be considered an accessory or an option at extra cost for another manufacturer. It is important for you to refer to the manufacturer's specifications for the detailed information you will need when making equipment purchasing decisions.

Chapter 5 discusses the foodservice equipment by functional areas in a conventional foodservice operation. A functional area is a location within the foodservice system where a specific task or group of like tasks occur. The functional areas discussed in the *Guide* are:

- Receiving
- Dry Storage and Chemical Storage
- Cold Food Production
- Hot Food Production
- Warewashing

Regardless of the production demands of the foodservice system, grouping tasks by functional areas provides benefits to the foodservice operation. Some of the benefits include:

- multi-use of individual pieces of foodservice equipment
- efficient flow of food from receiving through preparation to service
- storage of small equipment and utensils within ready access
- prevention of back tracking which is inefficient
- support of food safety principles
- support of inservice education for the foodservice assistant

Additional resources for you to use are the Equipment Purchase Decision Forms found in Appendix, p. A.11. The questions and forms have been reprinted from *Guidelines for Equipment to Prepare Healthy Meals* (Nettles & Carr, 1996). The forms will help you organize your thoughts when purchasing foodservice equipment for your CNP.

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RECEIVING

Receiving is a functional area and the first step in the flow of food through a foodservice system. It is the important interface between the distributor and the CNP. For that reason, the receiving area functions as a control point for most food and a critical control point (CCP) for processed and ready-to-eat food.

Regardless of the size of the foodservice system, the activities associated with receiving are the same. The purpose of these activities is to ensure food quality and food safety. For training assistance in this area refer to the 1998 program *All-Star Receiving for Child Nutrition* (Hogue and Post, 1998).

The activities of the receiving function include:

- Visually inspect all items and look for signs of contamination or container damage.
- Check expiration and pack dates.
- Count boxes invoiced but not delivered; note shortages.
- Check the product number against the purchase order or receiving ticket. Only accept approved brands.
- Check substitutions for approved brands.
- Check temperatures and record on chart.
- Remove any loose staples or fasteners.
- Reject unacceptable goods and note on invoice.
- Sign the invoice and retain a copy.

Each CNP must locate an area within the foodservice system to accomplish these tasks. The objective of good receiving practices is to certify that all food moved into production is an approved brand. In addition, receiving is the opportunity in the flow of food to determine that products are in good condition, appropriate temperature, and delivered as ordered.

Suggested equipment for the receiving area in a conventional kitchen includes:

- 2 wheeled hand truck and/or
- 4 wheeled platform hand truck
- utility carts
- table/desk for paperwork
- scales
- thermometers
- fly fan

DRY STORAGE/CHEMICAL STORAGE

After receiving food and supplies the foodservice assistant moves the goods to dry, refrigerator, and freezer storage. This is the second functional area. Most CNPs should turn their dry inventory regularly for quality and cost control. Dry strorage and chemical storage, although similar in function, must have all contents stored separately. Food must never be mixed in a storage area with chemicals or cleaners.

The dry storage area should be clean, dry, well ventilated, and temperature controlled. The recommended dry storage temperature is between 50° F - 70° F. Shelving selection will impact air circulation, pest prevention, and first-in first out (FIFO). There are a variety of shelving options.

Style and finish of shelving should be consistent with storage application and budget.
Style examples include:

- open wire
- louvered
- embossed or raised steel
- solid
- vented, steel reinforced plastic
- polymer composite

Finish examples include:

- galvanized - solid, embossed or louvered
- zinc
- chrome
- zinc plating and organic coating

NSF requires shelving systems to be non-rusting, and approved for direct contact with food.
For example:

- polymer - composite (ideal refrigerator, pot and pan, meat, and fish storage)
- polymer - reinforced stainless steel

Boxes and cases should be discarded so only clean and marked cans, tubs, and bags are stored on shelves in the dry storage area. Organize these shelves with like items together to facilitate inventory and promote food issues to the production area.

Shelving Systems

Types of shelving systems:

- stationary - put in place and remain for a period of time, lacks versatility
- mobile - similar to stationary but has casters
- track - also known as high density or active aisle shelving, derivative of mobile system with mount or guided on a track (floor or ceiling)
- wall mounted - adjustable cantilever shelving - adjust to various heights, ease of cleaning

The CNP planning for a shelving system should include:

- analyze typical goods stored
- size of can(s) (or other type container)
- space allowed for aisle (walk both sides, carts)
- specialty shelving like bag-in-the box
- delivery schedule

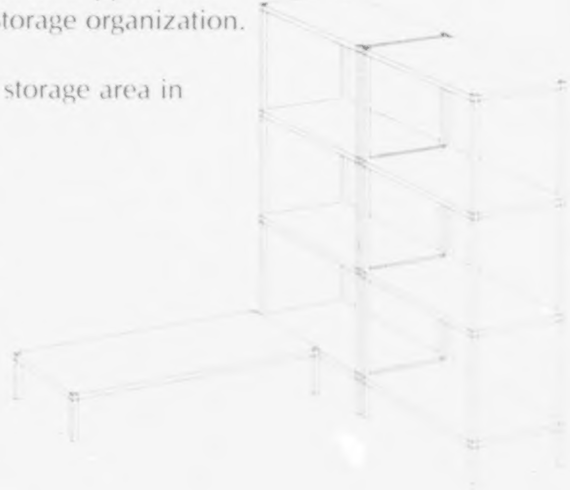
Suggested equipment for the dry storage area in a conventional kitchen includes:

- shelving system
- dunnage racks
- can storage rack (optional)
- utility carts

Food and chemicals are stored separately to prevent any possibility of chemical poisoning. Your local chemical supplier can make recommendations for chemical storage organization.

Suggested equipment for the chemical storage area in a conventional kitchen includes:

- shelving system
- janitor sink
- washer/dryer (optional)



COLD FOOD PRODUCTION

Cold food production is a functional area that requires refrigeration, equipment, water, and a work area. A variety of activities take place in this area from washing produce for preparation to slicing, chopping, mixing, and plating.
The CNP will want to organize the cold food production area to:

- produce the menu in a timely and efficient manner
- ensure food safety which includes thoroughly washing produce and adequate refrigeration of ingredients and completed recipes
- provide a work flow that is efficient and safe for employees

The equipment described for cold food production in a conventional kitchen includes:

- refrigerator/freezer
- blast chiller
- ice machine
- mixer
- slicer
- cutter/mixer

Employee competence to operate a slicer, cutter/mixer, or other equipment should be certified before the equipment is used.

Cooling Units

Most refrigeration and freezer systems have a compressor, a condenser (air or water cooled), an evaporator, and a fluid called refrigerant. This system moves heat out of food via moving air.

Refrigerators

There are a wide variety of refrigerator units found in CNPs. They include:

- walk-in
- reach-in
- pass-through
- under the counter
- roll-in
- soft serve
- ice cream cabinet
- display refrigerator

The purpose of the refrigerator is:

- keep food cold
- reduce the rate of deterioration by diminishing enzyme activity
- control the growth of microorganisms that potentially can cause foodborne illness
- maintain food quality

Walk-in Refrigerator/Freezer

The walk-in refrigerator or freezer is designed for bulk storage. Virtually any size is available. Most walk-ins today are pre-engineered (prefabricated) panelized construction which makes them flexible within the space available.

Constructed of a series of 4" (1.0 cm) thick manufactured and modular panels, individual panels are attached with a variety of latches, camlocks, or bolts to form outer walls, ceilings, and in some cases the floor. There is a variety of heights, lengths, and widths available.

These are specified either self-contained (side or top mounted), quick-connect, or remote refrigerator system. Sufficient air space must be available around cooling units to prevent build up of excess heat.

Primary factors in refrigerator/freezer selections include:

- total amount of storage
- amount of space available
- frequence of product delivery
- shelving needed
- CNP menu

Other considerations in equipment selection include:

- condition of floor
- condition of ceiling (proper ventilation of unit's condenser)
- access to work area traffic flow
- requirement for special equipment
- power available
- local permits or codes
- location of door/door swing

Rule of thumb for sizing is a cubic foot (15.24 cubic cm) of usable storage space per meal served.

Reach-in Refrigerator/Freezer (near production area):

- versatile
- reasonable cost
- storage efficiency

One, two, three compartment - many options available depending on:

- budget
- capacity
- general storage, special products
- should eliminate interior shelves to adapt refrigerator for roll-in carts

Determine capacity and size by:

- approximate number of meals
- receiving schedule
- kitchen space available

Reach-in capacity refers to available interior space.

Keep in mind:

- evaporators
- lights
- tray slides

Typical interior capacity:

- single compartment
  21.5 cubic foot/.6 cubic inch
- double compartment
  46.5 cubic foot/1.3 cubic inch
- triple compartment
  70.0 cubic foot/2.0 cubic inch

Standard features:

- dial thermometer
- heavy duty hinges
- self closing door with safety stop
- flush mounted automatic interior light
- door opening for 12" X 20" and 18" X 26" pans
- heavy duty cylinder locks
- adjustable legs
- NSF approved shelving

> The NSF and FDA are recommending lower holding temperatures. Check local health codes for cold food holding temperatures.

Table 5.1 Refrigerator/Freezer Temperatures

Storage	Temperature Ranges
Dairy	34° - 40° F
Frozen	-10° to 0° F
Ice cream	-10° F
Meat / Poultry	34° F
Fruits	38° F
Vegetables	38° - 40° F

Blast Chiller

The blast chiller is designed to rapidly cool almost any kind of food. Once thought to be only needed in a cook-chill system, the blast chiller has taken on a new place in food production.

An essential component of a Hazard Analysis Critical Control Point (HACCP) system is time-temperature holding of food. This includes proper cooling. The data verifies that the primary cause of foodborne illness in the United States is improper cooling of hot food as bacteria thrive in the temperature danger zone (40° F - 140° F) (cold food holding in some areas is a minimum of 41° F).

There are recommended procedures to cool food. However, if use of one of them is not routinely used, a blast chiller is recommended.

Cooling hot food in a foodservice walk-in or reach-in refrigerator can pose a serious risk of foodborne illness. These units are designed to store food that is already cold. They were not designed to chill hot food. Refrigerators don't create enough air flow to pull hot food through the danger zone to below 40° F in the recommended amount of time.

> The capacity of the blast chiller (in pounds) per load equals the number of persons the chiller can serve for three meals per day.

Selecting a blast chiller:

- product brought to below 40° F in 90-120 minutes or less
- footprint (overall size, dimension and shape)
- installation and maintenance requirement
- available training
- easy to understand and use operating manuals
- consultation and technical support
- quality construction materials
- parts availability
- time/temperature reporting
- ease of cleaning and maintenance

Ice Machine

Commercial ice machines are actually small manufacturing plants. They utilize water and electricity to make ice. Ice is considered a food and must be handled like a food. A total system has three major components:

- ice production - flakes or cubes
- ice storage - varying capacities 400 - 500 pounds, refill automatically or manually, stand or floor models with insulated equipment and a drain; normally constructed of either plastic, aluminum, galvanized steel, stainless steel, or combination of materials
- counter dispensing - moves the ice from storage bin to glass (gravity feed common)

> Ice machines are rated according to the amount of ice the machine produces within 24 hour period. Consider, storage bin plus the amount the ice machine can produce during the peak period = total ice available.

A storage bin must be selected that is slightly larger than the machine's rated production capacity (risk ice melt in bottom). Carefully select a bin to meet production and service needs.

Three types of condensers:

- air cooled - generally cost less and easy to install, but tends to heat environment around them
- water cooled - uses water to remove heat, no fan, quiet to run
- remote air cooled - heat dispelled through a vent, usually located on the roof, more costly to install but can reduce monthly bills

Other notes:

- a water filter should be installed regardless of the water conditions
- ice machines usually run 16-18 hours daily
- ice machines require 20 lbs. per square inch of water pressure
- optimum water temperature is 50° F - 70° F

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Mixer

The mixer is considered a valuable and versatile piece of equipment because of the variety of attachments. There are numerous manufacturers and models of mixers on the market. Planetary action mixing provides thorough blending and mixing action by repeatedly turning the mixed product into the center of the bowl. Mixers range from table top to 140 quart models geared to high volume institutional use.

Mixers have a wide application with standard and optional attachments to meet the needs of changing and expanding food service menus. Mixers come in a variety of sizes/capacities, ranging from 5 quart to 140 quart, indicating the bowl size. The applications determine the correct size needed.

Table 5.2 Mixer Information

Mixer Capacity	Application	Space Design
5 quart	Specialty Mixer	Counter
12 quart	Small-General Purpose Mixer	Counter
20 quart	General Purpose Mixer	Counter or Floor
30 quart	Light/Heavy Duty Mixer	Floor
40 quart	General Purpose Mixer	Floor
60 quart	Pizza Dough Mixer	Floor
80 quart	General Purpose Mixer	Floor
140 quart	Heavy Duty Mixer	Floor

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Standard features:

- mixing bowl - bowl size depends on the size of mixer purchased: 5, 12, 20, 30, 40, 60, 80 quart
- 140 quart size, depending on model of mixer purchased, may be available
- agitators - flat beaters, dough arms, wire whips, pastry knife
- variable speed motor - usually in smaller quart capacity models, tend to bog-down with low rpm (heavy loads)
- lift mechanism raises bowl to agitator (larger models)
- housing column and base constructed of cast iron, cast aluminum, or welded steel
- surface finished with tough polyurethane, baked enamel, stainless steel or polished aluminum exterior skin
- bowl stabilized with use of hand-locking clamps attached at sides
- some have fixed bowl positions, others offer variable height selections
- power take-off hub for attaching other devices (grinders and slicers) located on front

Optional attachments and accessories available at extra cost:

- vegetable slicer - slices vegetables
- plate holder assembly - attaches to vegetable slicer to mount grater plates
- bowl splash cover - controls the splashing of wet and dry ingredients
- bowl extension attachment - increases height of bowl to decrease whipped ingredients from being thrown from the bowl
- bowl truck - used to move floor models as well as moving larger bowls into place
- bowl adapter - to be used when larger mixers are used with smaller capacity bowls
- bowl scraper - used to reduce labor costs of manual bowl scraping
- food chopper or grinder - used to grind boneless meats, vegetables and nuts
- food dicer - produces french fries, vegetable sticks as well as diced vegetables
- soup strainer/colander - replaces the mixer bowl, agitator is replaced by a roller or brush assembly, roller is used for slicing potatoes or vegetables, brush is used to remove seeds from fruit for jams or jellies
- stop and start controls
- programmable controls

Slicer

There are numerous manufacturers of slicers on the market. Most are designed to slice high volume amounts of meat and cheese quickly and efficiently. Slicers vary in size, depending on the need of the CNP. Smaller manually operated models with 10" knives are ideal where occasional slicing is done. Larger models with 12" knives are best when large volume slicing is done. Most models are operated in either a manual or an automatic setting. Blade sharpeners are built in, some are easier to use than others depending on the brand and model. Most are designed to dismantle for easy cleaning and sanitation.

The slicer (manual or automatic) may be used for:

- slicing hot or cold meat in uniform thickness
- slicing cheese in uniform thickness
- slicing vegetables with optional accessories

Standard features:

- gear driven or belt driven
- blade sharpeners, some removable, other not, push button, top mounted
- lift off top covers, for ease of cleaning/sanitizing
- permanent ring guard
- knives are either stainless steel, chrome plated, or carbon plated steel
- adjustable thickness regulator

Options and accessories available at extra cost:

- optional carriage fences to slice tomatoes
- food chutes to slice elongated vegetables
- food receiving tray

Advantages:

- labor saving
- maximum product yield - less waste
- ease of operation
- safe to operate - less incidence of work related knife accidents

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Cutter/Mixer

Also known as vertical cutter mixer (VCM), this equipment:

- prepares food quickly
- versatile piece of equipment; based on blender concept
- consists of conical mixing bowl with motor mounted at the bottom.
- removable sleeve with cutting blades mounted on the motor shaft which projects from the bottom of the bowl

Model information:

- 10, 15, 20 quart - counter top
- 25, 40, 60, 80, 130 quart - floor mounted

Standard features:

- clamp down lids, transparent material or metal (slide back viewing portal)
- operated - hand or motor
- rotating lever on top - turns bottle
- main drive motor - usually 2 speeds
- 1 hp to 25 hp units
- stainless steel bowl
- cannot operate unless bowl and lid are in place
- pulse control
- power indicator lights

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HOT FOOD PRODUCTION

Hot food production is a key area in the conventional foodservice system. Activities that take place within the cooking area are grouped according to the type of treatment required. For hot food that includes:

- seasoning
- mixing
- shaping
- breading
- panning
- cooking

The selection of type of equipment is affected by factors like:

- food to be processed (menu)
- type needed (bake, fry, steam)
- labor availability and skill
- serving schedule

Heat is applied to food to increase digestibility and customer appeal. Nutrient retention and food safety are always considerations. Heat is transferred to/from a product in four ways:

- conduction - molecule to molecule, example: pot or range top, oven, steam
- convection - heat transmitted through liquid or gas to food, example: convection oven
- radiation - radiant waves
- induction - raise heat because pan is subjected to alternating electromagnetic field; with this process the operator must use stainless steel cookware.

In the hot food production area, attention to internal cooking temperature, time-temperature monitoring, and minimum time in the danger zone are all important. Your CNP will want to post intermal temperature requirements for all meat items in the production area. For more information on equipment selection refer to *Guidelines for Equipment to Prepare Healthy Meals* (Nettles & Carr, 1996).

The following equipment described for hot food production in a conventional kitchen includes:

- tilting braising pan
- steam jacketed kettle
- direct steam kettle
- convection steamer
- pressure/pressureless steamers
- pressure steamers
- high pressure steamers
- combination oven/steamer
- convection ovens
- fryers
- range

Like other pieces of foodservice equipment, the selection of each piece should be based on the guiding principles decribed in detail in Chapter 1.

Tilting Braising Pan

The tilting braising pan is also known as tilt skillet or tilting frypan. It is a one piece stainless steel pan with vertical side walls, a front pouring lip, and hinged stainless steel cover; it is also considered a griddle with high sides and a cover.

The tilting braising pan has a variety of applications like: braise, grill, pan fry, saute, steam, and boil
Examples:

- brown or braise stew meats, ground beef
- shallow pan fry chicken, fish
- saute vegetables, stir fry
- cook soups, stews, sauces
- back-up grills, steamers, kettles
- steam vegetables with optional steamer pan insert rack

Options and accessories available at extra cost:

- steamer pan insert assembly
- receiving pan support
- pour lip strainer
- flow diverter
- vented lid
- single or double pan fry faucet with swing spout
- tangent draw-off valve
- solid state temperature control
- electronic ignition (gas models)
- spray hose assembly
- casters
- special electrical options
- gallon markings
- special stands (counter top models)

Configuration:
counter top, tubular leg base, open or closed base, wall mount

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Standard features:

- stainless steel welded one piece braising pan
- coved interior corners
- manual or motor driven power tilt
- formed pouring lip
- hinged stainless steel lid (floor models)
- thermostatic temperature control
- adjustable feet
- power "on-off" switch
- operating temperature range of 100° F to 450° F
- receiving pan support
- indicator light for power "on"

Advantages of the braising pan:

- versatile
- reduced preparation and cooking times
- labor saving - easy clean-up; reduces use of extra pots and pans

Installation tips:

- Install floor sink or grate in line with the braising pan pour path. The pour path is detailed on the manufacturer's specification sheet.

Table 5.3 Tilting Braising Pan Information

Model/Type	Sizes and capacities
Counter top models - electric only	10, 12 and 15 gallons
Floor models - gas or electric	23, 30 and 40 gallons

Steam Jacketed Kettle

A steam jacketed kettle is cylindrical in shape with a rounded bottom. A second larger cylinder is placed around the outside of the main cylinder creating a space between the two. This space is sealed so that steam may be injected. As steam enters this space it releases its energy (heat) by condensing onto the inner kettle's outer wall. This transfers heat to the food being cooked. Consider a double boiler used in a home kitchen. A steam jacketed kettle is the same basic concept.

There are two designs in kettles - a fully jacketed and a two-thirds jacketed kettle. Within the basic design of the fully jacketed kettle, there are two varying designs in the interior construction. One design is described as a hemispherical bottom interior. The other is described as a dish type slopped interior.

Kettles are available in direct steam or self-contained electric or gas that are tilting or stationary.

All stationary models are supplied with a food draw-off system. There are two designs and varying sizes available on the draw-off valve, the tapered plug type, and a screw type gate valve (compression valve). Both are available in 1½", 2", and 3" sizes.

The steam jacketed kettle is used for boiling, stewing, simmering, braising, holding, and rethermalizing (reheating).
Examples:

- soups, stews, sauces, gravies
- pasta, rice
- puddings, pie fillings
- vegetables
- cereals
- meat roasts, corned beef, poultry
- shrimp, lobster
- tea

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Some CNPs use the kettle to quickly chill foods (ice bath) or to mix cold salads. When purchasing a kettle consider both gas and electric options.

Manufacturers vary in type, models, and capacities. Refer to manufacturer's specification sheet for detailed information.

Standard features:

- stainless steel interior and exterior, type 304 stainless steel kettle liner
- low water safety control system
- jacket pressure gauges
- thermostat temperature controls
- factory charged with chemically pure water, rust inhibitors, and antifreeze
- pressure relief valve
- stationary floor models include cover and 2" draw-off valve and perforated stainless steel strainer
- adjustable feet
- pouring lip for tilting models
- 25-50 psi steam jacket rating
- design certified by ASME, AGA, UL, NSF

Options and accessories at extra cost:

- type 316 stainless steel liner for high acid products
- 3" tangent draw-off valve
- cooking basket assembly
- water fill faucets
- swing funnel for drain
- flow diverter (tilting kettle)
- gallon markings
- condensate ring on covers
- kettle brush kit
- electronic ignition (gas models)
- special electrical options
- lift off or hinged lid

Table 5.4 Kettle Information

Type/ Model		Size/Capacity
Table top	tilting, electric gas	6 - 15 gallon 20 - 40 quart
Tri-leg	stationary, electric tilting, electric	20 - 80 gallon 20 - 100 gallon
Pedestal base	stationary, electric tilting, electric	20 - 100 gallon 20 - 80 gallon
Tri-leg	stationary, gas	25 - 150 gallon
Tri-leg	tilting, gas	20 - 80 gallon

Direct Steam Kettle

Direct steam kettles operate with steam provided by a remote steam source. Consult with your manufacturer or sales representative to calculate steam flow rate requirements for the optimal performance of the kettle.

Standard features:

- stainless steel interior and exterior, type 304 stainless steel kettle liner
- steam control kit: steam control valve, steam trap, condensate strainer, check valve
- 25-50 psi steam jacket rating
- stationary floor models include cover 2" draw-off valve and perforated stainless steel strainer
- pressure relief valve
- pouring lip for tilting models
- adjustable feet
- design certified by ASME, NSF, UL

Options and accessories at extra cost:

- type 316 stainless steel liner for high acid products
- cooking basket assembly
- water fill faucets
- swing funnel for drain
- flow diverter (tilting model)
- gallon markings
- condensate ring on covers
- increased psi option
- pressure reducing valve for regulating incoming steam pressure
- hinged or lift off cover
- kettle brush kit

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An optional piece of equipment is the mixer kettle. Agitator and scraper assemblies are available for most direct and self-contained electric, table top, and floor mounted kettles. This kettle, also referred to as cooker/mixer, features a mechanical mixing unit which can eliminate the manual stirring of ingredients. This saves labor time. The mixing of the agitators/scrapers reduces cooking times.

Advantages of mixer kettles:

- reduce cooking times by enhanced heat transfer to foods
- reduce cooling times when water cooling system installed (direct kettle)
- keep solid ingredients suspended in liquids which is necessary when pumping food from kettle

Wall-mounted kettles can be mounted and installed on in-wall support arms (wall carriers). This feature provides for optimum sanitation. This type of installation may be seen in conjunction with energy distribution systems.

Installation tips:
Make certain that the floor drain or grate is located in line with the kettle's pour path or draw-off valve. These details are provided on the manufacturer's specification sheet.

Provide a water source either mounted on the kettle as a swing spout faucet, fill faucet or some other shared source such as a water tower.

Table 5.5 Kettle Size Information

Model/type	Size/capacity
Table top	6 - 20 gallon
Tri-leg stationary	20 - 150 gallon
Tri-leg tilting	20 - 100 gallon
Pedestal base - stationary	20 - 150 gallon
Pedestal base - tilting	20 - 80 gallon
Cabinet mounted - stationary	20 - 60 gallon
Cabinet mounted - tilting	25 - 60 gallon

Advantages:
Most advantages related to cooking with kettles are based around the efficiency of heat transfer by steam to the inner wall of the kettle. Other advantages are based on the design and construction of the kettles. For example:

- short cooking cycle
- vegetables cook with minimum loss of nutrients, color, and flavor while maintaining firm texture
- cleaning is sanitary and simplified
- smooth, rounded surfaces are quickly cleaned
- uniformity of cooking
- foods protected from burning; no hot spots, no scorching
- optimum use of floor space
- using vertical space makes a small floor area do a large production job

Convection Steamer

Each manufacturer varies in how steam is supplied to the cooking compartments and what controls are used to perform this function. Pressureless steamers are available with self-generating gas or electric steam coil generators and direct steam models. The steam is supplied from an outside source. Direct steam units require a clean, potable steam supply.

Each compartment will equate capacity by the number of 12" X 20" X 2" deep pans it will hold. Perforated pans are preferred when possible for more consistent cooking but solid pans are acceptable. Capacities vary among equipment manufacturers.

These steamers require a water supply which fills the steam generator/boiler and supplies the cold water condensate system. Open air gap floor drains are also required within a specific distance from the steamer.

Application:
Steam cooking, defrosting, and rethermalizing
Examples:

- vegetables (fresh and frozen)
- rice
- pasta
- eggs
- poultry
- seafood
- meats
- prepared foods
- frozen entrees
- hot dogs
- potatoes

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Standard features:

- convection steam flow, pressureless, free venting cooking compartments
- capacity in 12" x 20" X 2" pans
- compartment controls are mechanical or solid state and include a timer, indicator lights, and buzzer
- steam generator/boiler controls include "on-off" switch, indicator light, automatic water fill, automatic water level controls, safety controls, automatic steam generator/boiler blow down
- stainless steel exterior and enclosed modular cabinet base
- insulated stainless steel interior cooking compartment with removable pan slide racks
- cold water condensate system
- cooking compartment drain
- separate electrical connection for controls
- electronic ignition for gas models
- 6" stainless steel legs
- visible steam generator pressure gauge
- steam generator/boiler deliming assembly

Options and accessories available at extra cost:

- alternate cooking compartment controls
- assembly of valves and tubing to connect an auxiliary kettle
- alternate hinging of cooking compartment door
- special state boiler code requirements
- adjustable flanged feet
- special electrical requirements
- 6 or 10 gallon tilting kettle mounted to expanded base
- water faucet/spray hose supply

Table 5.6 Convection Steamer Information

Model/Type	Size/capacity in 12"X 20"X 2" pans
Pressure generator - electric, gas, steam coil, direct steam	6, 10, 16
Atmospheric generator - electric, gas	6, 7, 10, 12, 24
Pressure generator-electric, gas steam coil, direct steam	10, 16

Advantages:

- enhanced food quality and retained nutrients
- form and texture retained
- color retained
- shrinkage minimized
- nutrient retention
- energy efficient
- less BTU's used to cook the same quantity of food
- labor efficient
- less time required to prepare food due to better heat transfer
- less hands-on required in production and clean-up, no stirring needed, same pans used in cooking may be used in serving
- optimize floor space
- more food cooked within the floor space required by a range

Additional advantages when compared to pressure steamers:

- flexibility of loads
- cooking cycle may be interrupted to adjust loads by opening the door at any time
- no flavor transfer, different foods may be cooked at the same time in the same compartment
- color retention of foods
- pressureless steam temperature is 212° F. (steam temperature under 5# of pressure will be 227° F)
- form and texture of foods
- no cellular breakdown of foods due to pressureless atmosphere
- broadened application
- defrost capability allows cooking of either frozen or fresh products

Installation tips:

- recommend a water treatment system be installed to enhance preventive maintenance
- stay within the distance for drains required by the manufacturer

Pressure/Pressureless Steamer

These steamers offer the flexibility to operate in a pressure steam mode or a pressureless steam mode. There are two types of pressure/pressureless steamers manufactured. One type offers two or three cooking compartments where the top compartment is converted from a pressure to a pressureless mode and the bottom cooking compartments always operate in a pressure mode. The pressure mode for this type operates at 5 or 6 psi depending on the manufacturer. The steam temperature is approximately 228° F (109° C). The other type offers two cooking compartments where both may be converted from a 10 psi pressure mode to a pressureless mode. The steam temperature is 240° F (116° C).

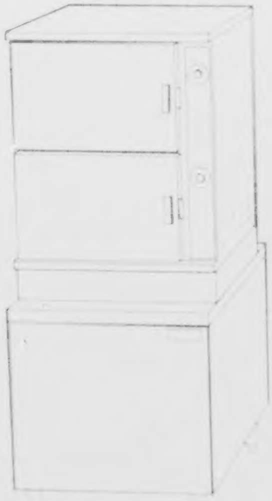
These steamers are generally mounted on a 36" wide cabinetized base. Each cooking compartment may accommodate six to eight 12" x 20" x 2" pans or up to four 18" x 26" sheet pans. A smaller model is also available mounted on a 24" wide cabinetized base. This model accommodates three 12" x 10" x 2" pans per cooking compartment.

Steamers are available in self-generating electric and gas steam generator models. They are also available in steam coil generators and direct steam models whereby the steam is applied from an outside source. Direct steam units require a clean, potable steam supply.

Self-generating pressure steamers may be specified to supply steam to an auxiliary piece of equipment such as a kettle.

Application:
Steam cooking, defrosting, and rethermalizing
Examples:

- vegetables (fresh and frozen)
- rice
- pasta
- eggs
- poultry
- seafood
- meats
- prepared foods
- frozen entrees
- hot dogs
- potatoes



Standard features:

- cooking compartment convertible from pressure mode to pressureless mode (see description for types)
- convection steam flow, pressureless, free venting cooking compartments
- capacity in 12"x 20" x 2" pans
- compartment controls are mechanical or solid state and include a timer, indicator lights and buzzer
- steam generator/boiler controls include "on-off" switch, indicator light, automatic water fill, automatic water level controls, safety controls, automatic steam generator/boiler blow down
- stainless steel exterior and enclosed modular cabinet base
- insulated stainless steel interior cooking compartment with covered corners and removable pan slide racks
- cold water condensate system
- cooking compartment drain
- separate electrical connection for controls
- electronic ignition for gas models
- 6" stainless steel legs
- visible steam generator pressure gauge
- steam generator/boiler deliming assembly

Table 5.7 Pressure/Pressureless Steamer Information

Model/Type	Size/capacity
Electric steam generator 42/48 KW	2, 3 compartments
Gas steam generator 250,000/300,000 BTU	2, 3 compartments
Steam coil generator	2, 3 compartments
Direct steam	2, 3 compartments

Options and accessories at extra cost:

- alternate cooking compartment controls
- assembly of valves and tubing to connect an auxiliary kettle
- alternate hinging of cooking compartment door
- California or Washington state boiler code requirements
- adjustable flanged feet
- special electrical requirements
- water faucet/spray hose supply

Advantages:

- allows the flexibility of cooking in a pressure steam mode or pressureless steam mode
- provides advantages as described for the pressure steamers
- provides advantages as described for the pressureless steamers

Installation tips:

- recommend a water treatment system be installed to enhance preventive maintenance
- stay within the distance for drains required by the manufacturer
- steamers require a cold water supply which fills the steam generator and supplies the cold water condenser
- open air gap floor drains are also required within a specific distance from the steamer

Pressure Steamer (Low and High)

There are two categories of pressure steamers manufactured. One category is known as low pressure steamers and the second as high pressure steamers. Each will be described separately.

Low pressure steamers are usually mounted on a 36" wide cabinet base and have two to three cooking compartments. Steamers are available in self-generating electric and gas steam generator models. They are also available in steam coil generators and direct steam models whereby the steam is supplied from an outside source. Direct steam units require a clean, potable steam supply. Direct steam units are also available with four cooking compartments.

Each compartment can accommodate six to eight 12" x 20" x 2" deep pans. Perforated pans are preferred. Sheet pans, 18" x 26" may also be used. Pan capacities vary among manufacturers.

Pressure steamers are recommended for cooking like foods per batch or compartment load, as flavors may transfer.

Self-generating pressure steamers may be specified to supply steam to an auxiliary piece of equipment such as a kettle.

Application of both low and high pressure steamers.
Examples:

- vegetables (preferably non-frozen)
- potatoes
- rice
- pasta
- eggs
- poultry
- corned beef
- stew meats
- pot roasts
- hams

Standard features of low pressure steamers:

- 5 psi operating pressure in cooking compartments
- capacity in 12" x 20" x 2" pans or 18" x 26" sheet pans
- compartment controls include a timer, indicator light, and buzzer
- steam generator (boiler) controls include "on-off" switch, indicator light, automatic water fill, automatic water level controls, safety controls, automatic steam generator (boiler) blow down
- cooking compartment drain
- automatic exhaust for cooking compartment
- electronic ignition for gas models
- visible steam generator pressure gauge
- stainless steel exterior and enclosed modular cabinet base
- 6" stainless steel legs
- cold water connection
- load compensating timer

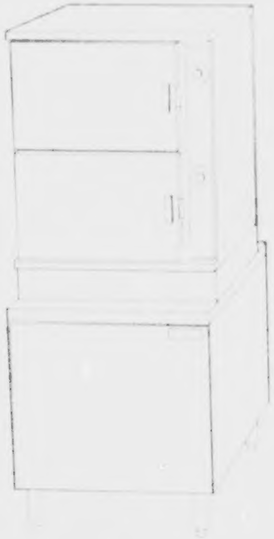


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Table 5.8 Pressure Steamer Information

Model/Type	Size/capacity
Electric Steam Generator	2, 3 compartments
Gas steam generator	2, 3 compartments
Steam coil generator	2, 3 compartments
Direct steam	2, 3 compartments

Options and accessories at extra cost:

- assembly of valves and tubing to connect an auxiliary kettle
- water treatment system
- California or Washington state steam generator controls
- boiler deliming assembly
- PRV - pressure regulating valve
- ball float trap (direct and steam coil models)
- manual sliding shelf
- KW increased on electric elements
- BTU increased on gas burners
- special electrical requirements
- adjustable flanged feet
- casters
- water faucet/spray hose supply
- stainless steel gas flue cover

Advantages:
Observed when compared to conventional range top cooking:

- enhanced food quality and retained nutrients
- form and texture retained
- color retained
- shrinkage minimized
- energy efficient
- less BTUs used to cook the same quality of food
- labor efficient
- less time required to prepare food due to better heat transfer
- less hands on required in production and clean-up
- no stirring needed, same pans used in cooking may be used in serving
- optimize floor space
- more food cooked within the floor space required by a range

Additional advantages when compared to pressureless steamers:

- uses less energy
- uses less water

Installation tips:

- recommend a water treatment system be installed to enhance preventive maintenance
- stay within the distance for drains required by the manufacturer
- steamers require a cold water supply which fills the steam generator and supplies the cold water condenser
- open air gap floor drains are also required within a specific distance from the steamer

High pressure steamers are offered in counter top, stand, or cabinet base mounted models. There are several model sizes manufactured. The largest model available may accommodate three 12" x 20" x 2" pans in a single cooking compartment.

Steamers are available in self-contained electric, gas, or direct steam models. They are also available mounted on electric, gas, or steam coil generator (boiler) in a cabinet base.

The counter top models require no water or drain connection. Water is filled and drained manually. Generator (boiler) based models require a hot and cold water supply and open air gap floor drain connection. The operation is automatic.

The self-contained countertop models require a heat-up time on each cooking cycle. The steam generator (boiler) based units require an initial heat-up time for the steam generator then steam is readily available for each cooking cycle.

The cooking compartment door is an inside self-sealing type and cannot be opened during a cooking cycle.

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Standard features of high pressure steamers:

- timer and buzzer
- indicator light
- automatic controls and exhaust
- stainless steal exterior
- inside self-sealing door with gasket
- generator base models - automatic water-fill and blow down

Options and accessories at extra cost:

- increased KW on electric generator based models
- increased BTU on gas generator based models
- special electrical requirements
- stainless steel stand
- stainless steel adjustable feet
- ball float trap - direct steam models
- pressure-reducing valve - direct steam models

Combination Oven/Steamer

The combination oven/steamer offers a single cooking chamber with the ability to cook in three cooking modes which include hot air mode (convection oven), a steam mode (convection pressureless steamer), and a combination of both modes (circulating hot air with superheated steam). The combination oven/steamer may cook in all three modes independently or in sequence moving from one mode to another depending on the menu item, i.e., starting the cooking cycle of a roast in the steam mode to sear the outside and accelerate the cooking process, move to the combination mode to reduce shrinkage and the cooking time, and finish in a high temperature convection hot air mode to enhance the outside color.

Combination oven/steamers are available in gas or electric models.

They are available in two generic sizes which are half size and full size. Half size models accommodate 12" x 20" x 2" pans or 13" by 18" sheet pans. Full size models accommodate 12" x 20" x 2" pans and 18" x 26" sheet pans. Both sizes are available in several capacity sized models. Some manufacturers describe sizes in levels or pan racking positions, such as 10 levels. Models up to 10-11 pan capacity can be mounted on tables, stands, or even double stacked. Both half and full size models in the 20 pan capacity or level become floor models with roll-in carts.

Application:

Roast, steam, bake, poach, blanch, grill, defrost,
cook-and-hold, and rethermalize.
Examples:

- vegetables
- meats
- poultry
- seafood
- muffins
- breads
- pizza
- prepared foods
- frozen entrees

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Standard Features:

- three cooking modes - convection hot air, convection steam, combination of convection hot air, and steam (variations to the steam mode are available with some manufacturers)
- micro-processed controls
- control panel includes selection of cooking modes, time and temperature, some manufacturers offer various other functions fan speed, KW input, vent control, water spritzing, cool down, cook, and hold
- programmable memory may be considered an option
- built-in diagnosis
- fan filter system
- deliming ability
- safety controls for water level
- high limit thermostat
- drip trough for cooking chamber
- electronic ignition for gas models
- cold water condensing system
- spray hose assembly may be considered an option

Table 5.9 Combination Oven/Steamer Information

Model/Type	Capacity/size/level
Counter top or stand	4-6 pan/level-half size
Mounted - electric	10-11 pan/level-half and full size
Mounted - gas	10-11 pan/level-half and full size
Roll-in/floor base - gas	20-23 pan/level half and full size
Roll-in/floor base - electric	20-23 pan/level half and full size

Options and accessories at extra cost:

- stainless steel support stands
- landing or loading tables
- roll-in carts
- pan slides for stands
- additional pan racks/wire shelves
- casters
- water treatment system
- special electrical requirements

Installation tips:

- open air gap drain should be located within the distance from the unit recommended by the manufacturer

Advantages:

- flexible
- cooking times are reduced
- meats are cooked with less shrinkage
- quality of cooked foods may be enhanced
- large cooking capacity

Convection Oven

The convection oven offers a cooking chamber with a fan to circulate hot air. This is called forced convection heat which is the origin of the convection oven name. Convection ovens are available in gas and electric models.

Convection ovens are offered in single, double stacked, and roll-in models. Each cooking chamber has 11 rack guides and is supplied with five racks.

These ovens are available in two depths. The standard depth model accommodates 18" x 26" sheet pans in a right to left loading position. The extra deep depth model accommodates 18" x 26" sheet pans in a right to left and/or front to back loading position.

The two doors on each cooking chamber are available in two basic configurations 60/40 or 50/50. The doors open and close either independently or simultaneously on a pulley system. Doors are offered with glass window panels or solid stainless steel.

Manufacturers offer various control packages. The control packages range from mechanical thermostats and dial timers to solid state controls that are digitally displayed to computer based controls that are programmable. Coding features are also offered in the control packages such as fan delay, cook and hold, and moisture injection.

Application:
Bake, roast, slow roast and hold, and rethermalize
Examples:

- bread products
- cookies
- cakes
- pies
- meats poultry
- seafood
- frozen entrees
- pizza
- potatoes
- grilled cheese sandwiches
- macaroni and cheese

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Standard features:

- stainless steel front, painted sides, top and legs
- double pane thermal glass windows in stainless steel door frames (doors may be solid stainless steel)
- porcelain interior liners in cooking chamber
- interior oven lights
- cool to touch door handles - design varies
- HP two speed fan motor (1/2 HP two speed and single speed also offered)
- 140° F to 500° F thermostat range (varies with control package)
- timer varies with control package
- stainless steel door gaskets
- eleven position rack guides per deck
- five plated racks supplied per deck
- rapid cool down function
- electronic ignition system (gas models)
- gas connection with manual shut-off valve and pressure regulator (gas models)

Table 5.10 Combination Oven Information

Model/Type	Capacity/size/level
Electric and Gas - Full size, single deck	Standard and Deep Depth 11- 18″ x 26″ sheet pans
Electric and Gas - Full size, double deck	Standard and Deep Depth 22 - 18″ x 26″ sheet pans
Gas and Electric Roll-In - Single Deck	Standard and Deep Depth 10 - 18″ x 26″ sheet pans
Gas and Electric Roll-In - Double Deck	Standard and Deep Depth 20 - 18″ x 26″ sheet pans

Options and accessories at extra cost:

- control options - cook and hold, fan delay, moisture injection, programmable functions
- solid state controls
- computer controls
- stainless steel exterior - top, sides, legs
- casters
- drip pans
- solid stainless steel doors (when glass windows are standard)
- stainless steel interior
- open stand with rack guides
- rear enclosure panel-painted or stainless steel
- base cabinet with finish options
- additional racks
- special electrical requirements
- flue diverters and adaptors (gas models)

Installation tips:

- measure doors and aisle space to ensure the oven will fit into kitchen
- gas ovens must be vented under a hood or through a flue stack; flue diverters and adaptors are available from the manufacturer
- measure the hood height to ensure oven will fit under the hood

Advantages:
Observed when compared to conventional oven cooking:

- more product cooked in less floor and hood space due to rack design
- energy savings are observed due to reduced cooking times, and lower cooking temperatures
- better heat distribution results in more even baked products

Fryer

There are three basic components to every fryer:

- the fry tank
- the burners heating elements or electromagnetic induction heating coils
- the controls

The fryer uses hot oil as the heat transfer.

Fry tanks:
There are two basic designs of fry tanks for gas fryers which are the bottom fired design and the tube fired design. Induction fryers also use the tube fry tank design.

The fry tank design for electric models has a slightly flat tank bottom with immersion type elements. A "cool zone" is necessary for trapping food particles, minimizing carbonization, prolonging oil life, and reducing flavor transfer.

Burners, heating elements, induction heating coils, and gas burners that are commonly used are atmospheric burners which may also be engineered as a power burner and infrared tile burners. Electric heating elements that are commonly used are the flat ribbon style heating elements and alloy stainless steel sheath heating elements.

Controls:
Controls are key to maintaining temperature. The closer the set point (cooking temperature) is maintained the better the cooking results. Select a fryer based on menu and operational requirements.

There are three basic types of controls:

- Millivolt controls. The self-generating millivolt system has a 10 second delay response to temperature. A temperature swing of 20° F may occur with this system.

- Solid state controls. This electronic control has modulating thermostats and may react to +/-2° F.
- Computer controls. This control system has proportional integral derivative (PID) heat control and may react to +/-1° F. This control offers various programmable functions. Manufacturer and service diagnostics may also be offered with this system.

Fryers are categorized in size by the capacity of the frying compound and the pounds of frozen food which may be cooked in one hour. Fryers are available as independent/stand alone units or batteried/banked as several units together.

Filtering removes carbonized particles that cause dark color and off flavor in fried foods. Filtering may be done manually or automatically with a filtering system.

Various types of filters are available like the roll-around (mobile or portable), the slide out drawer filter, or the built-in filter. Each manufacturer offers a partnering filter system with their fryer line.

Table 5.11 Fry Information

Model/Type	Fry compound capacity	¼" Fried potatoes per hour approximated
Gas	35-40 lbs	65 lbs
	45-50 lbs	100 lbs
	65-70 lbs	115 lbs
	70-85 lbs	115 lbs
Electric	30-35 lbs	62 lbs
	50 lbs	80 lbs
	78-82 lbs	105 lbs

Application:
Examples:

- french fried potatoes
- tater tots
- onion rings
- variety of fried vegetables
- chicken
- chicken nuggets
- fish sticks or nuggets

Standard features:

- stainless steel front top
- thermostat control-millivolt, solid state, computer 200° F - 400° F
- 1" (1¼") full port drain valve
- basket hanger
- rear gas line connections
- twin baskets
- 6" adjustable legs
- high limit control

Options and accessories at extra cost:

- stainless steel fry tank cover
- selection of extra baskets and screens
- skimmer
- crumb scoop
- tank brush
- automatic basket lifts
- upgrade to stainless steel fry tank (if not standard)
- casters
- upgrade choice of controls
- flex hose and quick disconnect with restraining device
- stainless steel exterior-front, sides
- landing station
- warming lamp for landing station
- filter system

Installation tips:

- National Fire Protection Association requires fryers to be positioned at least 16" away from any open flame cooking equipment. NFPA # 96 9-1.2.2
- space over fryer has a code approved hood and fire suppression system
- follow start-up instructions for initial cleaning "boil out" of the fryers to eliminate dust, grease, and other contaminants

Advantages:
Observed when compared to deep fat frying on top of a range:

- ease of operation
- safer when frying at high temperatures in a contained piece of equipment
- capable of handling continuous batches
- quality of fried foods is enhanced

Two Burner Range

The range has two gas burners (gas fired models) or electric hot plates (electric models) in a cabinet stand. The range is used to supplement primary cooking equipment.

Application:
Supplemental heating surface

- boiling water
- melting butter

Standard features:

- stainless steel cabinet exterior - front, top, sides
- 6" stainless steel adjustable legs
- two removable cast iron burners with lift off heads (gas model)
- two hot plates (electric model)
- removable cast iron top grates (gas model)
- removable crumb tray under burners (gas model)
- rear gas connection and gas pressure regulator (gas model)

Options and accessories at extra cost:

- single or double pantry faucet
- stainless steel rear panel
- stainless steel rear flanged feet
- griddle hot top

Accessories for ranges:

- ovens - conventional and convection
- broilers

Installation tips:

- space over range has a code approved hood and fire suppressions system

Table 5.12 Range Information

Model/Type	Size/Capacity
Gas	Two burners
Electric	Two hot plates

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Food Processor

There are numerous manufacturers of food processors available. Most are compact in design to use less counter space. Use a commercial model not a home-style unit.

Application:

- texture modification
- food processors are used to speed up the production/preparation time of some recipe ingredients and or menu items
- food processors dice, slice, grate, shred, and julienne food
- continuous feed units process food quickly with uniform pieces
- labor saving

Standard Features:

- interchangeable cutting tools/plates, some are stainless steel
- some models have handles for carrying
- NSF - UL listed
- can process up to 400 - 1000 lbs. per hour

Options and accessories available at extra cost:

- variety of cutting tools/plates
- wall mounting racks to hold cutting tool/plates
- gun to put puree in a form
- attachments (slicing plate, pulping plate, grating plate, and others

Advantages:

- quality of finished product - consistent uniform pieces
- labor saving
- less waste versus product cut by hand
- reduces injury-work related compensation, lost time
- versatility

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The food procesor is a versatile piece of equipment that may be moved between the cold and hot food production areas to meet special dietary needs for textual modification.

Texture modifications using the processor may include:

- Regular: Texture of the food served regularly to children who participate in the lunch or breakfast programs.
- Chopped: Use a food chopper, a food processor, or even a knife to cut the food into bite sized pieces.
- Ground: A food processor or blender is used to grind the food until it is soft and small enough to swallow with little or no chewing.
- Pureed: Pureed food is smooth in texture and the consistency of mashed potatoes. A food processor or blender is used to puree foods. Add a small amount of liquid to avoid dryness.

Ventilation

Cooking equipment in the hot food prduction area can be considered a generator of contaminated air. The quantity of this air is developed by each piece of equipment based on temperature and size of physical cooking area. Properly designed ventilation systems relate to a safe and efficient kitchen.

Proper kitchen ventilation is a complex application of the HVAC system:

- air conditioning
- fire safety
- ventilation
- building pressurization
- refrigeration
- air distribution
- foodservice equipment

Reasons for a ventilation system include:

- remove heat, grease, odor, smoke, steam, and flue gas by-products from the kitchen.
- provide a comfortable and productive kitchen environment.
- enhance safety of personnel.
- provide fire protection in the kitchen.

Center piece of the ventilation system is the exhaust hood. Hood styles include:

- wall mounted canopy
- single island canopy
- double island canopy
- back shelf (counter height equipment)
- eyebrow (direct mounting to ovens and some dishwashers)

Hood will remove:

- steam
- heat
- grease
- smoke
- odor
- flue gas by-product

Check local code requirements for type of hood required. When designing a new foodservice system ventilation requirements should be carefully reviewed due to the cost.

Factors to consider in a kitchen ventilation system:

- hood size
- filter size
- filter placement
- introduction of makeup air

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Holding Cabinet - Heated and Unheated

Many CNPs use the hot holding cabinet as an interface between production and service. This provides a safe temperature controlled storage of cooked and ready-to-eat food items to meet service demands. All hot foods should be held above 140° F to assure they will not be held in the temperature danger zone. Selection of the holding cabinet with humidity control, for example, is important to maintain food quality.

Heated holding cabinets are also known as warming cabinets or heater/proofer cabinets. The unit is an enclosed cabinet designed to hold baking pans or steamtable pans. Their function is to hold prepared food hot for service at a set temperature. Unheated cabinets are used for holding and transporting large quantities of prepared foods not requiring to be held at a set temperature. Holding cabinets come in a variety of styles for both heated and unheated models; mobile or stationary; reach-in, pass-thru, roll-in, or roll-thru. They are made with glass or aluminum doors.

Application for heated cabinets include:

- meat
- poultry
- fish
- pizza
- vegetables
- breads, muffins, biscuits, rolls
- proofing bakery dough

Application for unheated cabinets include:

- breads, muffins, biscuits, rolls
- prepared desserts
- catering set-up

Standard features for heated and unheated cabinets:

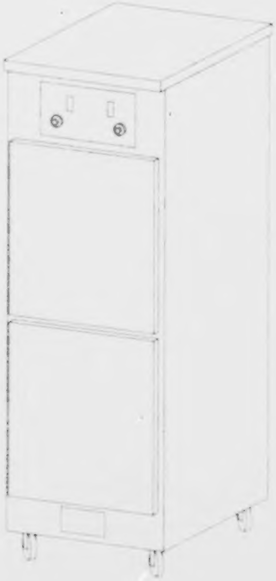
- all welded construction
- full perimeter bumper
- reinforced doors for added support
- heavy duty casters with brakes for mobile units
- front stainless steel drip trough
- fully insulated for heated units
- 8 ft. heavy duty cord and plug
- door mounted thermometer (heated)

Options and accessories available at extra cost:

- corner bumpers
- stainless steel push handle
- mechanical set timers (heated)
- universal slides
- controlled humidity

Advantages of cabinets:

- supports efficient production
- mobile and stationary options
- easy to clean and service



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WAREWASHING

The functional area of dish and tray washing is important within the foodservice system. It is here that soiled dishes, glasses, flatware, and trays are visibly cleaned and sanitized. Within the warewashing area there are a number of tasks that must be completed like, scraping, racking, prewash, wash, rinse, sanitize.

Dishmachines

The dishmachine is a major investment and commitment. There are a number of considerations when selecting dishmachine features:

- proper ventilation - otherwise there is excessive humidity and possibly poor/unsafe working conditions
- adequate lighting - allows staff to see broken glass and excess water accumulation
- proper utilities available - inadequate power can damage machine or there can be non-performance
- drain size and location
- walls, floors and ceiling should resist moisture, absorb sound, easy to clean
- booster heater
- capacity based on number of meals
- cleanability

Four wash functions:

- Scrapping and pre-wash: 100° - 120° F remove soil
- Wash: solution of hot water 140° - 160° F and detergent soften soil, melt grease
- Rinse: 160° - 180° F
- Final rinse/sanitize: 180° - 195° F sanitizing

Note: a booster heater is needed to maintain water at 180° F.

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Elements of the dishmachine:

- time - time and cost efficiency
- temperature - thermostat to help regulate, booster (if necessary)
- water pressure - to take care of protein soil
- detergent - based on hard water, light/heavy soil
- rinse addition - water conditions

Standard features:

- automatic tank fill
- detergent/chemical connection provisions
- door activated drain
- door safety switches
- interchangeable spray arms
- leakproof doors

Table 5.13 Typical Dishwasher Capacities

Type of Dishmachine	Dishes / Hour	Racks / Hour
Single-Tank Door	1,550	53-62
Two-Tank Conveyor	5,850	205-234
Three-Tank Conveyor	6,650	234-272
Flight Type	12,000	0 - 0

Low temperature dishmachines are also available. It should be noted that silver, aluminum, and pewter are attacked by sodium hypochlorite or liquid bleach. Look for a machine that is designed for a liquid bleach solution not exceeding 50 ppm. Pumps will dispense detergent, sanitizer, and drying agent in liquid form. In a low temperature dishmachine the temperature requirment is 140° F.

Standard features:

- automatic tank fill
- convenient controls
- door safety switch
- leakproof door
- low water tank heat protection
- stainless steel heavy gauge contruction including base and legs

If your CNP does not use a dishmachine, set up a three-compartment sink away from food production areas. Include an area for scraping into a disposer or garbage container. A drain area is required for clean items. The three compartments include:

- wash - detergent solution at least 110° F
- rinse - clear water at 120° F
- sanitize - submerge items in hot water at 170° F for 30 seconds (some require 180° F) or place in chemical sanitizer at least 75° F.
- air dry

In addition to the dishmachine, there are several other pieces of equipment that are considered integral components of the washing system. They include:

- potwashing machines
- trash compactors
- garbage disposers
- pulpers

Pot, Pan, and Utensil Washers

Pot washers operate in much the same way as door-type machines. There are, however, some differences that include:

- larger motor to pump water
- more horsepower to create high-velocity water stream to strip off encrusted food
- internal size

The specifications of a pot washer is determined on the basis of the volume of pots and pans to be washed. Some CNPs elect to use a standard three compartment sink for washing pots, pans, and utensils.

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Waste Handling

Other equipment needed is for waste handling:

- garbage disposers
- pulpers and other waste removal equipment
- trash compactors

Waste removal means liquid portions of the garbage is flushed into sewer system. This reduces weight and volume of the garbage. The CNP wants to reduce odors and vermin associated with garbage. Waste handling equipment allows for waste to be transported through a soil pipe (eliminates carrying heavy can to larger container).

Garbage Disposers

The primary function of the garbage disposer is to grind food waste and mix it with water. This mixture is then piped from the operation to the sewer. Commercial garbage disposers are usually specified by horsepower. The typical range is between ½ and 5 horsepower.

Pulper and Extractor Systems

Some municipalities have ordinance against the use of commercial disposers because of the heavy load on the sewer system. Trash pulpers and compactors can significantly reduce garbage volume. Check local regulations before planning the purchase of a pulper and extractor system.

With a pulper, water and waste are mixed together; ground into small particles; piped to extractor; solids are separated from water; water returned to pulper and mixed with fresh water; water reused in grinding process; solids conveyed to conventional trash container. The final product looks like sawdust or ground paper.

A pulper and extractor system costs more than conventional disposers. However, the high initial cost is offset by:

- reduction in waste handling
- reduced water consumption
- labor simplification

Specifications:

- operate under dish table
- operate with extractor connected to a remote location (slurry piped from pulper to extractor)
- connect directly to the waste trough on a soiled dish table

Standard features:

- flatware saver
- common fill and drain connection
- flushing valve to pump motor seal
- flexible draw latches in hood assembly
- remote mounted control box with overload indicator lights circuit breaker
- start/stop switch
- stainless steel tubular bullet foot legs
- water level control

Small pulper
handle up to 475 pounds per hour

Larger, self-contained system
handle up to 700-900 pounds per hour

Trash Compactors

Mechanical device designed to compress waste materials so the volume is greatly reduced. Waste is easily transported out of food production area. Trash compactors have many obvious advantages. For large CNPs, the compactor may be installed at the back door of the kitchen. The garbage can be removed by trucks with a specially designed lift. Kitchens with a large accumulation of glass, boxes, and trash find the compactor to be an advantage.

Suggested equipment for conventional kitchens include:

- dishmachine
- disposer
- booster heater
- hand sink
- soiled dish table
- clean dish table
- pre-rinse sink with spray
- racking shelf
- tray dispensers
- dish dispensers
- utility carts

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Chapter 6:
Decision Process

OVERVIEW

The decision-making process for purchasing equipment for a new kitchen or replacing old equipment follows the same steps. Chapter 6 provides in-depth discussion of each step in the process. The first step is to complete the Equipment Selection Matrix (found in Chapter 4). This enables you to document the use of each piece of equipment necessary for your menu. Next, develop a purchasing cycle working backwards from the expected date of use. Once the critical paths for purchasing are established, secure equipment specifications and compute your new equipment needs. It helps you identify the basic parameters required by your operation.

Usually you will find that more than one brand of equipment initially appears to meet your needs. However, each piece of equipment will have different features and benefits. The next step is to compare manufacturers' specifications to determine the value of the respective features and benefits.

The final step is to establish the total cost of ownership through life cycle costing.

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RENOVATION
REPLACEMENT

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Steps in the Decision Process

Your journey will include a variety of important decisions that will impact employees' efficiency, system productivity, and even student satisfaction for years to come. Yes, the amount, capacity/size, and type of equipment selected may also affect the financial success of the school foodservice program.

The guiding principles (Chapter 1) have provided the foundation of your purchase decisions. In addition, the selection of the individual pieces of equipment must be menu driven - not only today but also in the future. Remember, the menu must reflect customer expectations. A student will turn to a competitor to have his or her expectations met if necessary.

Traveler's Tip

Investigate all applicable local and state code requirements. All equipment must be purchased and installed according to these codes.

Selecting equipment for new or renovated construction projects is not very different from adding or replacing equipment in the decision process. Your selection has a dramatic impact either negatively or positively. A well thought out decision will enhance the ease of operation, reduce fatigue, improve food quality, and even improve the work environment.

What's the bottom line? The decision process and the appropriate selection of foodservice equipment will be in evidence through expenditure of human energy, ease of operation, and maintenance for many years to come.

The decision-making process has several steps. Start the process by using the Equipment Selection Matrix (Chapter 4, Program Profile, Section XVI). Take a typical meal(s) and match the optimum application and use of the equipment to each menu item. This form actually has numerous uses and benefits.

Program Profile uses and benefits:

- ensures that the equipment selection process is menu driven
- directs the issue of quality food standards
- considers environment by addressing utility usage and physical labor requirements
- serves as an excellent tool to qualify and justify equipment to administration

After completing the grid, ask yourself these questions: Does the piece of equipment have multiple uses? Does the piece of equipment have limited use or is it dedicated to a specific menu item? Remember that while flexibility and multiple applications are desirable, you can never forget customer expectations.

For example, hamburgers are a popular menu selection and are served in many schools on a daily basis. If a quality hamburger product is a program "signature" item, you may find that a duplex cooker (grill with a clam shell top) is a worthwhile investment. So, equipment investment for sales generation is a factor. There are some obstacles or restrictions that may apply from a practical point of view in renovation and replacement projects such as space limitations and utility connections available amperage, gas, or water drain.

Traveler's Tip

Early on you will want to verify a variety of details like: steamers need dedicated floor drains (no PVC can be used in the first 3 feet as the pipe will melt and floor will buckle), utility availability, and access options.

Establishing the Purchasing Cycle

Gunn (1995) describes a purchasing cycle or critical path planning as a term used to time the movement of supplies. The same principles apply to equipment purchases. This planning method helps a school district organize and document the purchasing process.

Keep in mind that some school districts have a purchasing department and therefore may have specific/unique deadlines that must be considered. In such a case, these deadlines should be identified and communicated in the planning process.

Also consider that equipment manufacturers usually have a designated lead time to process, manufacture, and ship the order. This lead time will fluctuate during the year due to factors such as scheduled plant closings and holidays. Ask your manufacturer's representative or dealer salesperson to help you with this information.

How do I proceed? First, "begin with the end in mind" (Covey, 1989, p. 99). It is always good to start with the expected installation/startup date and work backwards. In other words, when do you need to have everything related to this new installation complete? Refer to Chapters 8 and 9 for more information to help you through this process.

Finally, you will want to include extra time to allow for unexpected delays. Table 6.1 is a sample time line demonstrating a critical path for a school opening in September.

Table 6.1 Critical Path Time Line Example

Activity	Date
Determine equipment list	April 14
Prepare invitation/bid package	April 28
Release public notice	May 5
Date for opening bid	May 26
Evaluations/tabulation of bids	May 28
Approval (if necessary)	June 2
Notify vender	June 4
Installation/Start-up	August 11

Traveler's Tip

In your time line you may want to allow a wider window for each step to accommodate flexibility and scheduling. In addition, check local district policy. For example, your district may require a 100 day process time.

Traveler's Tip

Allow a minimum of three weeks from installation until the first day of meal service. Keep in mind that construction delays may mean that equipment must be stored for several weeks before it can be installed. Also remember, completing hook-ups can be delayed as well as scheduling equipment representatives to do the use and care training. The bottom line is to be ready for the unexpected. Have an alternate plan for preparing and serving meals.

How to Find Specifications

Equipment specifications are an important part of the purchase process. They will be discussed in detail in Chapter 7.

Equipment specifications may seem to be written in another language, but with study you will find a great deal of pertinent and valuable information. They are readily available from:

- manufacturers' catalogs
- sales literature and point of sale
- equipment testing laboratories (see appendix)
- manufacturers' representatives and dealer sales persons
- trade journals and bounce back cards
- world wide web

Specification sheets are the means by which manufacturers describe their equipment and document important engineering information. These sheets are designed to be an important communication vehicle. In 1992, the Foodservice Consultant Society International (FCSI) – North American Food Equipment Manufacturing (NAFEM) liaison committee developed *Recommended guidelines for foodservice equipment catalog specification sheets*. Now manufacturers format their specification sheets in accordance with the guidelines. In addition, manufacturers comply with Construction Specifications International (CSI) which is a system of cataloging bid specifications in the construction industry.

Traveler's Tip

Do a thorough job of specification writing. The integrity and success of the equipment purchasing process depends on it.

Specification Content

Specification sheets provide detailed information on a front and back page. The front page gives product information including:

- equipment type
- model number
- capacity
- description of construction materials and finishes
- construction and design characteristics
- performance characteristics
- description of controls
- list of standard features
- description of safety features
- list of optional features available at extra cost
- laboratory certification and approval symbols (UL, NSF, CSA, AGA)
- special notes regarding any geographic limitations like altitude, humidity, temperature
- CSI section number
- date printed

The back page provides detailed engineering information which includes:

- model number
- drawings to scale in English and metric dimensions
- plan view, elevation/sections views
- location of utility connections on plan and elevations
- Computerized Assisted Design (CAD) symbols libraries
- all dimensions - interior, exterior, service, ventilation, air circulation, and clearances
- net and shipment (crated) weights
- crated dimensions - door clearances for building access

- data concerning utilities - gas, steam, water, electric, and ventilating
- miscellaneous information - variations, accessories, options, availability of colors, and finishes
- date printed
- manufacturer's address, phone number, and fax number

Traveler's Tip

Confer with your maintenance supervisor. Let him/her know what you want to accomplish. Verify additional power requirements and gas lines. You will want to order the same type power currently available. For example, if you have 208/60/3 phase you should not order equipment that is 480/60/3 phase.

The Mathematics of the Decision Process

You will want to compute your new equipment needs using a "recipe" method from the specification that will be designed and written. This method includes:

- number of portions required
- equipment capacity
- time constraints

Let's work through the steps:

1. Select representative menus and list equipment to be used.
2. Determine number to be served and portion size.
3. Multiply number of portions times portion size.
4. Calculate portions (weight or volume) and peak serving demands for food.
5. Determine batch cooking times - quantity per cooking cycle per piece of equipment. Compile information on quantities and time required for processing the food item in the specific piece of equipment.
6. Calculate equipment load capacity. Divide equipment load capacity into number of servings to get batch size.
7. Calculate size and number of pieces of equipment needed to produce quantity of food required to meet maximum demands.

The Mathematics

Computing the equipment needs using the critical recipe method:

- number of portions needed
- equipment capacity
- time constraints

Menu item: green beans or whole kernel corn
Equipment: convection steamer
Total number of servings/portion size = 300 ½ cup servings
Serving periods = 3
11:00 - 11:35 - 100 ½ cup servings
11:40 - 12:15 - 100 ½ cup servings
12:20 - 12:55 - 100 ½ cup servings

Number of portions per serving period = 100 ½ cup servings per 35 minute serving period
Student count per minute = average 10 students/minute
Total serving time = 10-15 minutes/100 students
Pan size = 12" x 20" x 2½" perforated full size
Number of portions/pan = 25 ½ cup servings
Cooking times = 6 minutes
Batch size = 4 pans

Analysis

Convection steamer sizes range from three full size (12" x 20" x 2") pans compartment to 24 full size pans compartment.

A minimum of four full size pans per compartment is needed.

Should other menu items require steaming simultaneously, it would be wise to consider a steamer with a six full size pan capacity.

Analyzing Manufacturers' Specifications

Just as you review a map prior to a long trip, you will want to review and analyze the specifications as part of the decision process. Not only is equipment need/justification part of the process, so is the comparison phase. You will want to compare and contrast manufacturer specifications to determine the value of the respective features and benefits.

Not only do manufacturers provide printed information on features and benefits, they may also provide competitive comparison information. Expect this to be helpful, but take responsibility for the final evaluation as not all manufacturers have the same standard features. One feature may be a standard for one company and an option (extra cost) for another. Compare apples to apples.

Traveler's Tip

It is important to understand the difference between an *option* and an *accessory*. An option is a variance from the standard production model and must be specified at the time of order. An option may *not* be added later. An accessory is also a variance but may be added later as a part. For example, an extra depth convection oven is an option. Cooking racks are an accessory.

Don't forget to consider value-added features also. Manufacturers develop features to add value to their products. Careful analysis of such features should be made to determine the degree of value it adds to your operation. This is called *value analysis*.

According to the National Institute of Governmental Purchasing, Inc. (1977) "value analysis is the technique of studying the total cost and the total savings to a school district on each purchase, instead of studying just the price and the availability" (p. 3-20). Value analysis combines quality and price. The result of the cost analysis is a value judgment as to whether any specific cost is high for value received. What is important to the program is the total value realized and not just the initial cost. This is where the "rubber meets the road" (i.e., where the guiding principles drive decisions).

Value-added features usually represent an added cost. This may, however, represent a long term savings in operational costs, an enhancement in actual operation, or an enhancement to food quality. For example, a fryer manufacturer offers three varieties/types of controls:

- millivolt thermostat control - basic model, temperature variance swing may represent 15° F
- solid state temperature control - better temperature accuracy, temperature variance may represent 5° F, includes added features and indicator lights
- computer controls - temperature accuracy of 1° F, includes added features, programable, energy saving

Consider your menu as you analyze these control options. If the food products on your menu can withstand high temperature variances and maintain good quality, the millivolt controls on the basic module would be an appropriate decision. If not, then the upgraded controls may be of true benefit and worth the added cost.

An additional step in the decision process and value analysis is to consider life cycle costing (LCC). This process establishes the total cost of ownership. The objective is to keep these costs to a minimum.

Life cycle costing was developed by the Federal Supply Service of the General Services Administration in the early 1970s (National Institute of Governmental Purchasing, Inc., 1977). It takes into account all costs including total operation, maintenance, repair, and eventual disposal of a product calculated in present value.

Initial costs and operational costs are easy to calculate. Maintenance and repair costs are sometimes difficult to project. The manufacturer's representative and authorized service agent may provide a list of commonly replaced parts and suggested preventive maintenance with their respective costs. Keep in mind that some repairs may not be projected. Adding these costs to the initial cost and operational costs will give you a good idea of the cost of ownership.

Focus on Replacement Planning

Replacement planning for foodservice equipment is part of a long range strategic plan. Among the benefits of such planning is the forecasting of capital expenditures. It is an important step in the development of good budgeting practices.

Replacement planning schedules should be established for each school, analyzed on a total school system basis, and reviewed annually. During the review, update maintenance and repair costs and analyze the value to determine if the repair cost is worth the value of the equipment.

There are three factors to consider while developing a replacement planning schedule:

- expected life of equipment
- repair costs
- maintenance costs

Think of replacement planning in terms of owning a car. On average, the car owner will keep the vehicle for four or five years. Cars have a decreasing value over time. In a few years the car is worth less than half of what it cost new. When the car breaks down, not only is transportation interrupted, the owner has to pay the repair bill, which probably wasn't in the budget. At some point the owner has to decide whether the repair is worth the value of the car. Will the repair extend the life of the car significantly or is it more cost effective to buy a new car?

The same process is true for foodservice equipment because value analysis continues throughout the life of the equipment. Developing a replacement planning schedule helps organize this process.

In summary, the decision process is a series of steps that starts with a foundation of guiding principles. It includes completion of the Program Profile Matrix (Section XVI) and continues through the development of the critical path time line, review of specifications, and value added features. Replacement planning is a management process that should not be underestimated in its importance to the future.

Traveler's Tip

Preventive maintenance has a significant impact on the longevity of equipment. A maintenance plan today will be more cost effective than a new piece of equipment "tomorrow".

Reality Check Point

The school construction plan in Hill County is in full swing. The CNP director feels project planning has really paid off. The first school is ready to open in a few weeks. The CNP director receives a call that an oven has gone out at the high school. Rather than just replacing an oven with a similar model they select a model that is similar to one being purchased for Taylor Elementary. The equipment installation date has finally arrived. Unfortunately, the CNP director did not verify the door measurement at the school. The replacement oven would not fit through the door. Maintenance had to remove the door frame to get the oven in the kitchen. Failure to check the door width resulted in unnecessary delays. Remember, pay attention to the DETAILS!

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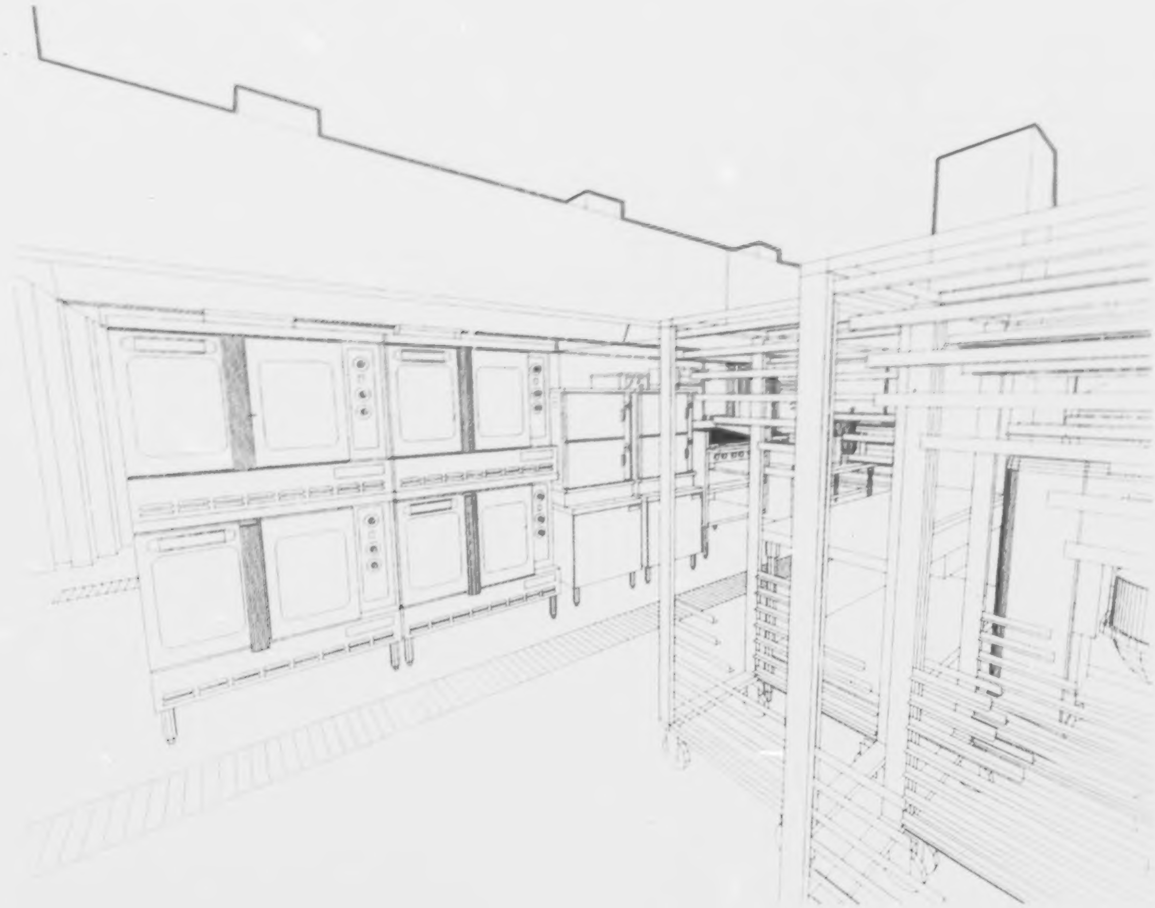
Chapter 7:
Specification Development



Chapter 7: Specification Development

OVERVIEW

Writing specifications is the process of putting all of your program expectations of the equipment on paper. The process is challenging and time consuming but essential for the new equipment to meet your needs. This chapter will guide you through the development of writing specifications that will become the body of the bid document. Writing clear and complete specifications is the only way to assure the acquisition of what you want and need.

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About Specifications

Various types of specifications will be described and a check list will be offered. This chapter is designed to help you gather and organize information from which the bid specification may be structured.

Writing specifications may be the most challenging and important step in the purchasing process. Consider that a specification is a "city map" for purchasing. Without an accurate map the equipment purchasing efforts may fail. The primary objective of good specification writing is to assure the acquisition of what you want and need.

There are two ideas to remember when developing specifications:

- The bidders cannot read your mind.
- The bidders are not going to provide any more than is asked for in the written bid specification.

The New Design Handbook for School Food Service (1997), provided by the NFSMI, includes an excellent resource chapter titled "Specifications." "The Pitfalls of Writing Specifications" chapter describes what may happen when the proper steps are not taken from the beginning of the process and will help you avoid the pitfalls.

Traveler's Tip

If you are ordering a "system," it does not necessarily mean you will be receiving all necessary components. Do your homework!

Types of Specifications

According to the National Institute of Governmental Purchasing, Inc. (1977), "a specification is a concise statement of a set of requirements to be satisfied by a product, material, or process" (p. 2-5). There are several types of specifications which will be needed at one time or another. Specifications take many forms, each having specific respective benefits. Listed below are the various types which will be described later in the chapter.

1. Qualified Product List (QPL)
2. Design Specifications (combination of Performance/Design Specifications)
3. Performance Specifications
4. Item Specifications

Regardless of the type of specification being developed, you will want to remember the guiding principles and follow criteria that include:

- identifying minimum requirements
- allowing for a competitive bid
- providing for an equitable award at the lowest possible cost

To assure that specifications meet these criteria, the following may be used as a check (✓) list. A specification should be:

____ simple but exact
____ identified with terms used in the marketplace
____ reasonable in its tolerances (unnecessary precision is expensive and restrictive)
____ capable of being met by several bidders for the sake of competition
____ clear and understandable

Developing specifications is an important responsibility for you and your program. Make no mistake, it is the hardest function in the purchasing process. It is wise to build a team of resource people to help provide and collect information in the development of specifications. Such a team might consist of:

- foodservice consultant
- school foodservice staff

- manufacturer's representatives
- equipment dealers
- service agencies
- other professional colleagues
- yourself

It is the CNP director's responsibility to analyze and develop the information to create your unique and final specifications. The Federal regulations clearly state that the CNP director must develop the actual specifications used in the invitation for bid (IFB).

Traveler's Tip

Don't rule out good resources to support the team such as a neighboring school district, utility specialist, trade journals, and your State Office of Child Nutrition. Don't delegate this responsibility. The ultimate person responsible for specifications is the CNP director.

Developing specifications is a challenge that can be frustrating. It is easy to use a short-cut style or form of specification. The following descriptions of specifications should help in your decision about time investment in specification writing.

1. Qualified Products List (QPL)

A qualified products list identifies various brands that have met specific criteria. Bidding is limited to those manufacturers whose products are on the list. The purpose of this type of specification is to determine, in advance, those products that meet the established criteria. The evaluation of these bids is greatly simplified. Awards may only be made for products on the QPL. A bidder who submits a bid for a product not on the QPL is not responsive, i.e., does not follow bidding requirements. Thanks to the QPL, any questions from manufacturers whose products are evaluated as unacceptable can be handled before the bids are issued. Developing a QPL is time consuming, but the benefits at the time of bidding are worth the effort.

When using a QPL, the specifications should state that the products on the QPL have been tested and have met the stated specifications. In addition, when you intend to adopt a QPL, you should notify the manufacturers that will be affected. Your program notice should describe all requirements necessary for their items of equipment to qualify for the list. The QPL should be updated frequently.

Traveler's Tip

To promote competition and take advantage of innovation in the marketplace, continue testing other pieces of equipment even after the QPL is developed. Manufacturers may change the quality and performance of their equipment, so be flexible and encourage testing of new products.

2. Design Specifications

Design specifications detail the characteristics that an item must possess to meet your specific requirements. Some specifications are so detailed that they also may describe how the product is to be manufactured. Design specifications are not as applicable for purchasing items designed by a manufacturer. The tendency to specify equipment with exact characteristics can be too restrictive and cost prohibitive. This is the case when dealing with patented products. For items that are neither patented nor custom made, a modified design specification can meet the criteria of a good specification by describing only essential features. This allows bidders more flexibility when establishing their bid prices.

3. Performance Specifications

Performance specifications describe the performance requirements that a product has to meet. The end result becomes the priority consideration. The manufacturer is given latitude in how the requirement is to be accomplished. Performance specifications encourage innovation and ingenuity. Tests or criteria are developed to measure an item's ability to perform as required. Performance specifications provide a good approach to writing specifications.

Traveler's Tip

An example of a performance specification could be that the oven must bake a certain volume of rolls, evenly brown on all racks, in a specified number of minutes.

Specifications can include both design and performance features used as prerequisites in developing a qualified products list. One reason why writing foodservice equipment specifications is so challenging is that there are so many different types of equipment. Remember, each piece of equipment has certain necessary requirements to consider. There are, however, common elements that must be included in your equipment specifications. The type of specification used is an individual choice. You decide how to proceed.

If using a brand name specification, include the statement "or alternate/equal/equivalent that meets or exceeds the specifications in quality, size, capacity, and performance." If using a QPL, include the statement "limited to products on the Qualified Products List".

Example of QPL List:

Equipment Corp., model No. EFG-2
ABC Company, model XYG-2
Reliable Inc., model QRS-2A

Description

The type of specifications used will determine how to detail this section.

Example:

Qualified Products List - a general description.
Design specifications - a detailed description focusing on "design" and essential features.
Performance specifications - a detailed description stating performance requirements.
Item specifications - description stating specific information that clearly identifies the level of quality and performance.

This section also describes accessories and options to be included. Don't forget to include specific available selections that may be offered, such as door hinged right or left.

Example:

Stainless steel leg stand
Stainless steel left and right side panels
Oven control package "O"

Be sure to include that the piece of equipment meets the applicable standards of recognized national testing labs:

AGA	American Gas Association
ASME	American Society of Mechanical Engineers
CGA	Canadian Gas Association
CSA	Canadian Standards Association
NSF	National Sanitation Foundation
UL	Underwriters Laboratories

4. Item Specifications

Brand name specifications cite a brand name, a model number, and other descriptions that identify a specific product of a manufacturer. Brand names should be used as an example of the desired quality level but not used to restrict the bid only to those brands. It is understood that items equaling or surpassing the quality level are also acceptable.

It is better to use more than one brand name if possible. When using brand name specifications, a statement should be included such as "prior approved equal" to indicate that items equivalent in quality to the specified brand names will be accepted by your program.

It is essential to include specific information that clearly identifies the level of quality and performance expected. It is appropriate to name the salient characteristics to be used in determining bid responsiveness.

Brand name specifications do not constitute adequate specifications because:

- objectivity may be lessened in the process awarding the bid
- equality of opportunity among bidders may be reduced
- competition may be eliminated

Utility Requirements - Electrical Requirements

List any electrical requirements for the item selected. This information appears on the manufacturer's literature. List voltage, cycles, and phase as well as the electrical load which will be in amperes (amps), watts, kilowatts, or horsepower. Be sure when selecting electrical requirements that the school where the equipment is to be installed has the same voltage, phase, and amps available.

Example: 208 Volts, 60 Cycles, 3 Phase @ 20 Amps - also shown as 208/60/3.

Traveler's Tip

The National Electric Code (NEC) 220-35 or 220-36 allows a facility to install up to a 20% smaller electric panel than in a comparable gas or conventional method used in the past for all electric kitchens. Another part of the code will allow you to add equipment to your existing panel without having to spend resources to enlarge the panel. Check it out with The Electric Foodservice Council, Appendix, p. A.9.

Plumbing Requirements

List any plumbing requirements for the item selected. This information also appears on the manufacturer's literature. List all hot water, cold water, drain, or gas requirements. Don't forget water and gas connection sizes as well as the gas rating of BTU/HR.

Example: ¼ inch gas connections @ 60,000 BTU/HR

Steam Requirements

List steam requirements. This information appears on the manufacturer's literature. Be sure that building steam is potable (drinkable) if contacting food. Be sure there is an ample supply of steam to meet operational requirements. Steam pressure is shown in pounds per square inch (psi). Special pressure reducing valves (PRV) and water condensate valves are required and should be specified. Consult with experts before attempting to write specifications for direct connected steam equipment.

Mechanical Requirements

According to *The New Design Handbook for School Food Service* (1997), mechanical requirements of equipment are those requiring duct work connections for the purpose of venting. This would be equipment items like dishwasher condensate hoods, cooking equipment exhaust hoods, or clothes dryers for towels or linen. The duct connection size will appear on the specification along with the suggested air to be exhausted or supplied to the equipment. The exhaust or supply will be noted as cubic feet per minute (CFM) and static pressure (SP). Static pressure is the amount of air resistance the equipment has and will be noted in inches, i.e., 10" x 30" duct connection for 3,200 CFM@ ¼" S.P. Like steam, it is advisable to consult with experts before attempting to write specifications for equipment with mechanical requirements. Duct work and fans will usually be required for the proper operation of the equipment which will require other contractors to be involved.

Special Instructions

List any special instructions to the bidder and be specific! This section is important because if you don't list it, you won't get it. Such special instructions shall include:

- installation instructions
- removal of old equipment
- demonstration requirements
- permit(s) acquisition

Example: Deliver, uncrate, remove crate, set in place ready for the final connections by others.

Traveler's Tip

Use of the words *shall, will, should,* and *may:*
You will want to use these words correctly when writing specifications.
***shall* - use to express a binding requirement-mandatory**
***will* - use to express a declaration of purpose on the part of the purchaser or when futurity is required**
***should* or *may* - use to express non-mandatory provisions**

Freight and Delivery Specifications

It is common practice in the foodservice industry for the manufacturer to coordinate the shipping arrangements. Be familiar and knowledgeable of the responsibilities of various shipping terms. Common methods of shipping used in the school foodservice segment are:

- Freight on Board (FOB) Destination, Freight Prepaid — The seller pays the freight charges, owns the goods in transit and files any claims for damage or shortage.

- FOB Destination, Freight Collect - The buyer pays the freight charges, but the seller owns the goods in transit.
- FOB Destination, Freight Collect and Allowed - The buyer pays the freight charges but deducts charges from seller's invoice for goods. Seller owns the goods in transit.

To avoid unnecessary headaches, it is recommended that equipment be shipped to the dealer location. In that way, you place responsibility on the dealer to receive the equipment, check it, then deliver to the school site. If delivery is made directly to the school, make sure the facilities are adequate to receive the equipment from the truck and there is adequate personnel to unload the equipment. If a loading dock is not available, specify that delivery be made on a truck with a lift gate. Chapter 9 addresses the receiving process in detail. Often, with new construction or an extensive renovation project, the general contractor receives the equipment.

Traveler's Tip

You will have several delivery choices. Decide in advance where the equipment will be delivered. Include these instructions in your specifications.

Installation Requirements

The installation requirements that should be included in the equipment specifications may be different for each piece of equipment in the bid. It is important to make sure the details of this part of the process are included in the bid. Be aware that installation can be a source for disagreement between two parties. To avoid any misunderstanding, delineate the responsibilities for the various aspects of the installation process.

No matter who is responsible for installing the equipment, it is a good practice to request installation manual(s) from manufacturers before writing the specifications. The detailed information in the manual verifies the requirements, confirms the fit, promotes fair bidding, and enables you to make a preliminary review.

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Installation requirements for new construction and renovation projects are fairly standard and usually are coordinated by the general contractor. Consider that replacing or adding new equipment may present obstacles that need to be detailed.

The following list of questions will be helpful in identifying the bidder requirements:

- *Who will install the equipment?*
- *Who will pay for the installation? Are charges included in the price or will there be additional charges?*
- *Who will receive, uncrate, and set in place?*
- *Who will remove crates and other debris?*
- *Who will make final utility connections?*
- *Who will remove the existing equipment?*
- *Who will relocate old equipment to new location?*
- *Who will disconnect the utilities from the existing equipment (water, electric, gas, steam, drains, and ventilation)? If you specify the utility work to be done by others, the responsibility to coordinate this with the arrival of the new equipment will be left to you or your designee.*
- *Who will apply for permits (if required)?*
- *Who will install, replace, or adjust fire protection for the equipment?*

Traveler's Tip

Specification writing and installation go hand in hand. Verify you have access to the location intended for the new piece of equipment...what about long corridors, a 90° turn, or a narrow doorway?

It is recommended that the following be included in the specification even though it should be understood. However, it is usually a good practice to delineate all of your expectations.

The specific equipment must be installed in accordance with:

- State and local codes
- National Fuel Gas Code, ANSI-Z223.1 (latest edition) available from the American Gas Association, Inc., 1515 Wilson Blvd., Arlington, VA 22209

- National Electric Code ANSI/NFPA-70 (latest edition)
- ANSI NFPA Standard # 96 "Vapor Removal from Cooking Equipment," (latest edition), from the National Fire Protection Association, Battery March Park, Quincy, MA 02269

Traveler's Tip

Chapter 9 and Appendix, p. A.73, offer an installation requirements checklist that may help when developing this section of the specifications.

Warranties

Warranties vary from manufacturer to manufacturer. Therefore it is beneficial to know what is included and not included in the warranty. You will find a sample of a warranty in Appendix, p. A.5-6. Some standard conditions and limitations covered in a warranty follow:

- period of time new products are warranted from date of original installation
- the liability of the manufacturer
- normal labor charges incurred in repair or replacement within a certain mileage limitation, 50 miles or 100 miles round trip is usual
- full parts or limited parts
- parts and labor
- listing of parts whose warranty period varies from the standard as stated in the original condition
- a no-obligation statement to warrant the equipment and the specifics such as, misapplied, mishandled, abused, modified, etc.

In the bid specifications, include the warranty requirements. Any modification to the standard original warranty, such as extended warranty coverage, should be stated.

A warranty should be analyzed just like a feature of the piece of equipment. Some manufacturers offer varying conditions that may become a deciding factor in purchasing the equipment. Some questions to ask in evaluating a warranty are:

- What is the duration of the warranty in months?

- Does the warranty provide service and repair at the installation site?
- Does the warranty cover labor, travel time, mileage, or zone charge for the life of the warranty?
- Are the parts warranted for the duration of the original warranty?

The manufacturer's representative and the authorized service agency would be good resources to use in evaluating warranty contracts. A sample warranty is found in Appendix, p. A.5-6.

Extended Warranties

Extended warranty coverage is as the term implies. A manufacturer extends the warranty period of its original equipment warranty for a period of a given number of months (i.e., 12 months) beyond the original equipment warranty.

An extended warranty could be advantageous if the additional price is in line with the price of a potential normal service call. Buying extended warranties is like buying insurance. It may not be worth it, but then again it could save you expensive repairs.

Some questions to consider in deciding on the value of an extended warranty are:

- Is the equipment a high maintenance item?
- Are the controls and electronics of the equipment sophisticated?
- Would specially trained technicians be required to service the equipment?
- What is the price of an authorized service agency call?
- How many miles is the installation site from the authorized service agency?

The answers to these questions should determine the value of the extended coverage.

Annual prices of extended warranties vary from one type of equipment to another. For example, according to several manufacturers:

- two burner range = $60.00
- typical 35 pound deep fat fryer = $140.00
- combination oven-steamer = $700.00

Again, forming a team of resource persons may help in this decision. School district technicians and factory authorized independent service technicians along with neighboring users could provide guidance in making the decision.

Traveler's Tip

All equipment must be purchased and installed according to local and state codes.

Reality Check Point

Hill County School district is enlarging the kitchen at Lockwood Elementary. Plans are to include a walk-in refrigerator/freezer. The CNP director is thrilled that the school is getting a walk-in refrigerator/freezer. The director writes a specification for a model that requires a recessed floor. The director reviewes all the drainage, talks with the general contractor, and believes everyone understands the floor requirements for the walk-in refrigerator/freezer.

The director visits the site after the slab is poured and discovers the cement slab is not recessed and will not meet the needs for a recessed walk-in. It will cost thousands of dollars to remove the slab, so the director collects the information required to rewrite the walk-in refrigerator/freezer specification. In this case, the equipment bid had not been released. If the CNP director had not paid attention to details, no one would have noticed the error until the walk-in was installed.

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Chapter 8:
Bid Process

Chapter 8: Bid Process

OVERVIEW

The big job of specification development is underway. Chapter 8 focuses on the bid process which is a means of acquisition. The ultimate goal of the bid process is to ensure open and free competition. Federal regulations govern the bid process for CNPs because they receive federal funds. In addition, each school district must follow its state and local procurement plans if they are more restrictive than Federal requirements. Chapter 8 outlines the process step-by-step from developing the bidders' list to evaluating and awarding the bids. The scope of the foodservice equipment purchase will determine the procurement method used and who will be responsible for providing the bid documents.

The bid process is one of the most important and exciting events of your journey. It is this process that allows vendors the opportunity to respond to your specifications. The ultimate goal of the bid process is to provide a purchasing system that ensures open and free competition. It's true that competition may have some flaws. "However, when competition is maximized to its fullest practical extent, and when ethically followed, it is the only proven purchasing technique that guarantee's full and equal opportunity to all qualified, interested bidders" (National Institute of Governmental Purchasing, 1977, p. 1-7).

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Traveler's Tip

You will need to check local, state, and federal procurement policy. It is your responsibility to follow all regulations and laws. Penalties do exist for noncompliance.

Child Nutrition Purchasing Regulations

Federal rules establish certain minimum procurement procedures that must be followed when Federal funds are to be used to pay for all or some part of the purchase. These rules also apply to any purchase funded from the nonprofit school foodservice account. It is essential for the CNP director to understand and comply with the Federal and state laws and local guidelines. Currently, the regulations governing the use of Child Nutrition Program funds are contained in USDA Regulation 7 CFR Part 3015. This regulation incorporates the requirements of Office of Management and Budget (OMB) Circular A-102, Attachment O, dated January 1981. For future reference (post 1998), the procurement requirements will be contained in USDA 7 CFR Part 3016 which will incorporate the most recent OMB Circular requirements.

Understanding the Bid Process and Competition

The bid process and bid documents are the same whether the purchase is for new construction, renovation, addition, or replacement. In new construction projects, the bid documents are provided by the architect, foodservice equipment consultant, or general contractor. The CNP director is responsible for communicating preferences and expectations to assist in establishing equipment specifications. In renovation, addition, and replacement projects, the CNP director is often expected to provide the bid documents. Part 210.14(a) states that "...such revenues [nonprofit SFS account] shall not be used to purchase land or buildings unless otherwise approved by FNS or to construct buildings."

Traveler's Tip

Be sure to contact your State Office of Child Nutrition to find out acceptable use of funds and obtain prior approval when necessary. Your state agency must approve use of nonprofit school foodservice funds to purchase equipment that costs more than $5,000 per unit.

One of the underlying principles is that all purchases be made under conditions that foster substantial competition among a sufficient number of companies. In the purchasing of foodservice equipment, there are three basic methods used:

- competitive bidding using sealed bids
- competitive negotiation using a request for proposal
- small purchase procedures

Table 8.1 describes the advantages and disadvantages for each type of bidding.

Table 8.1 Types of Bids

Types of Bids	**Advantages**	**Disadvantages**
Competitive bidding using sealed bids	▪ Advance preparation ▪ Easier identification of expenses ▪ No negotiation responsibilities ▪ Simplified monitoring	▪ Demands precise identification of needs ▪ May limit competition
Request for proposal	▪ Flexibility in assigning responsibilities ▪ SFAs benefit during periods of falling prices ▪ Greater flexibility in awarding the bid	▪ Complex monitoring ▪ Unbudgeted costs during periods of rising prices ▪ Potential reopening of negotiations ▪ Essential skill and experience required
Small purchase procedures	▪ Simple	▪ Currently limited to no more than $10,000.

Traveler's Tip

Bid awards can be a line item award or a bottom line award.

Most school districts require formal, advertised, sealed bidding procedures for purchases equaling or exceeding established monetary limits set by the school district. Under Federal rules, small purchase procedures can be used for aggregate purchases under $10,000. The small purchase threshold may change in the future.

The competitive bid purchasing process entails four essential functions regardless of the method. The four functions are:

1. Developing the bidders' list
2. Compiling standard general terms and conditions and/or *boilerplate* standard agreement into an invitation-for-bid (IFB) package
3. Inviting, advertising, opening, and tabulating the bids
4. Evaluating and analyzing the bids and making the award

Measuring Bidder Responsibility

Before you develop your bidder's list it is essential that the Invitation for Bid (IFB) must identify how the bidder will demonstrate responsibility. The CNP director should consider bidder integrity, compliance with public policy, record of past performance, and financial and technical resources. The IFB should describe the minimum standards expected of a responsible bidder in measurable terms. The measurement of the standards must be Pass/Fail and not provide for negotiation or evaluation. The following standards are examples of measuring bidder responsibility.

Example 1:

Standard: Record of past performance
Minimum requirements: Bidder must have performed successfully on all contracts in excess of $10,000 in aggregate executed during the past three years.

Required bid documentation to meet standard: Bidder must complete Attachment to the bid by listing all contracts exceeding $50,000 in aggregate executed during the past three years and whether the bidder is in default on each contract. Bidder will not meet the standard if the bidder has been determined to be in default on any contract by a court of competent jurisdiction or recognized administrative appeal or hearings board, whether or not monetary damages were awarded.

Attachment

Contract (Name or other identifier)	Value (Aggregate initial contact and extentions)	Date Executed	Is Bidder in Default on Contract (Y/N)

Example 2:

Note: Here is the same standard but with a measurement that is unacceptable in the underlined text.

Standard: Record of successful past performance.
Minimum requirements: Bidder must have performed successfully on all contracts in excess of $1,000 in aggregate during the past ten years.
Required documentation to meet standard: Bidder must complete Attachment ___ to the bid by listing all contracts exceeding $1,000 in aggregate executed during the past ten years and the status of each contract. Bidder will not meet the standard if the bidder has not completed all contracts on time or if bidder is behind schedule on any current contract.

A bidder who has not demonstrated responsibility in the past should not be considered for future contracts.

Developing the Bidders List

The bidders' list is a shopping list of equipment dealers and distributors from whom you plan to directly solicit bids. A complete list generates competition, so take the time to uncover a variety of sources.

It is essential to include all possible sources of bids to ensure competitive pricing. All bidders must have the opportunity to be placed on the list. All potential bidders need to be notified of your school district's bid.

If this is your first experience in purchasing foodservice equipment, you can use the following resources to develop a bidders list:

- trade journals
- recommendations from other CNP directors
- trade shows
- visits by sales people
- World Wide Web

Your goal is to invite potential bidders who pre-qualify to submit a bid for your project. In the Federal regulations are standards for implementing a procurement system for school districts or individual schools.
Standards include:

- assurance of competition
- cost analysis
- adequate review procedure to determine comparability of bids
- avoiding conflicts of interest (use your local Code of Ethics)
- use of the appropriate procurement methods
- compliance with equal employment, anti-kickback, and prevailing wage regulations

The ultimate goal of the Federal procurement regulations is to assure maximum open and free competition.

Traveler's Tip

Put the burden of verification of dimensions and utilities on the part of the seller, not the buyer.

CNP Director's Responsibilities

There are school food authorities that oversee a sizable procurement plan. Many of these CNPs have a purchasing department which administers purchase orders, contracts, and other purchasing functions. For the school food authority not having such available assistance, the purchasing authority may be passed to the CNP director. Therefore, a general knowledge of the legal aspects of purchasing is key. Keep in mind that the legal staff of your school system is the best source to advise you on legal matters related to procurement purchases. In addition, you will want to be well informed on community and political issues. For example, a proposed or current bond may provide funds directly realized by your program.

The CNP director has a responsibility of demonstrating compliance with federal, state, and local regulations in the purchasing of foodservice equipment. The purchaser must provide all potential vendors with identical specifications and identical requests for bids.

Traveler's Tip

It is important to look at how much the ongoing CNP needs to continue operating at its current level before tapping into these funds for equipment purchases. Depleting CNP funds will reduce the quality of the program designed to provide children with nutritious meals on a continuing basis. Prior approval by the state agency to use nonprofit school foodservice funds to acquire equipment costing more than $5,000 per unit is required.

In addition, the CNP director and appropriate school district staff must complete a cost analysis of the bids received using the same set of specifications and conditions included in the IFB.

Traveler's Tip

Carefully analyze the bids you receive. The lowest bid may not meet your specifications. A 102: "In competitive sealed bids (formal advertising), ... contract...is awarded to ...bid which is lowest in price." Bids which do not meet bid specifications are non-responsive and must be rejected.

During the bid process, the school district must maintain records to detail the significant aspects of their purchases. Record keeping required for purchases with nonprofit school foodservice funds includes:

- documents issued to solicit price bids
- public announcement soliciting bidders
- responses from vendors
- cost analysis
- signed award documents

Traveler's Tip

It is important you provide maximum open and free competition. Examples of actions that restrict competition include:

- **Placing unreasonable requirements on firms for them to qualify to do business;**
- **Noncompetitive practices between firms;**
- **Organizational confict of interests;**
- **Unnecesssary experience or unreasonable bonding requirements.**

Price-Fixing and Bid-Rigging

As you continue on your journey, keep in mind that it pays to be a savvy consumer because not everyone in the industry shares your ethical standards. In spite of the Federal regulation's efforts to foster substantial competition among a significant number of companies, price-fixing and bid-rigging still occur. A working knowledge of the law will help you avoid falling victim to such practices.

Antitrust legislation has been enacted on the federal and state levels. The antitrust laws include the Sherman Act of 1890; the Clayton Act of 1914; the Federal Trade Commission Act of 1914; and the Robinson-Patman Act of 1936, an amendment to the Clayton Act. Table 8.2 describes the essence of each piece of legislation. When these laws are effectively and responsibly enforced, they can save school districts millions of dollars a year in illegal overcharges. Violations of antitrust laws often result in higher prices for inferior products and services.

Table 8.2 Federal Antitrust Legislation

Legislation	Date	Essence of Legislation
The Sherman Act	1890	This Act outlaws all contracts, combinations, and conspiracies that unreasonably restrain interstate trade. This includes agreements among competitors to fix prices, rig bids, and allocate consumers. The Sherman Act also makes it a crime to monopolize any part of interstate commerce. An unlawful monopoly is when only one firm provides a product or service and it has become the only supplier — not because its product or service is superior to others but by conduct that suppresses competition. The Act is not violated simply because one firm's vigorous competition and lower prices take sales from its less efficient competitors. Sherman Act violations are punished as criminal felonies.
The Clayton Act	1914	The Clayton Act is a civil statue which carries no criminal penalties. It prohibits mergers or acquisitions that are likely to lessen competition. A key provision of the Clayton Act authorizes private parties to sue for triple damages when they have been harmed by violations of either the Sherman or Clayton Acts.
The Federal Trade Commission (FTC) Act	1914	This Act prohibits unfair methods of competition in interstate commerce but carries no criminal penalties. Even if a particular practice does not violate the Sherman, Clayton or Robinson-Patman Act, it may still violate the FTC Act. The FTC Act is used to prevent violations of both the specific antitrust laws and the public policy expressed in those laws.
The Robinson-Patman Act	1936	This is an amendment to the Clayton Act. It prohibits certain discriminatory prices, services, and allowances in dealings between merchants. Under certain circumstances, the Act prohibits a seller from granting lower prices to favored buyers, whether the price discrimination is instigated by the seller or forced upon the seller by the buyers. The Act does not make all price discrimination illegal. Certain defenses are provided (discounts to meet competitor's lower prices, for example). The Act imposes criminal sanctions for certain practices and for sales at unreasonably low prices if the purpose is to destroy competition.

Indictments in the 1990s have alerted school purchasers to the importance of the antitrust laws. Price-fixing and bid-rigging conspiracies are, by their nature, secret and therefore difficult to detect. Law enforcement officials rely on complaints and information from consumers and competitors to identify violations.

Price-fixing and bid-rigging schemes generally occur where there is inadequate competition. More sellers means more competition and usually better prices. School purchasers should be alert to the warning signs of price-fixing and bid-rigging, as noted below.

Warning Signs of Price-fixing and Bid-rigging

- Evidence that two sellers of similar products have agreed to price their products a certain way, to sell only a certain amount of their product or to sell only in certain areas or to certain customers
- Large price changes involving more than one seller of similar products of different brands, particularly if the price changes are of equal amount and occur at the same time
- A seller stating, "We can't sell to you; according to our agreement, so-and-so (the seller's competitor) is the only firm that can sell to you"
- Fewer competitors than normal submitting bids on a project or product
- Competitors submitting identical bids
- The same company consistently coming in as the low bidder and getting contracts for a certain service or a particular area
- Bidders appearing to win bids on a fixed rotation
- An unusual and unexplainable large dollar difference between the winning bid and all other bids
- The same bidder substantially higher on some bids than on others, with no logical cost reason to explain the difference

Traveler's Tip

If you observe any of the warning signals indicating price-fixing or bid-rigging, consult the legal staff in your school district. Their job is to advise you in all legal areas and about concerns that relate to your purchases. Also, law enforcement officials rely on information from purchasers to identify potential violations of antitrust laws.

Solicitation of Bids

The first step in soliciting bids is to decide whether you will use an informal competitive procedure for small purchase procedures or formal method such as competitive sealed bidding or competitive negotiation. When you select a formal procedure, you will need to advertise.

To solicit sealed bids, post a public notice of the intended purchase on bulletin boards at the administrative offices of the school food authority and advertise in the newspaper. Public notice should include the following:

- name of the school district
- brief description of the equipment
- date and time of bid opening
- name of contact person
- where bid documents can be obtained
- legal authority

Next provide potential bidders with an invitation-for-bid (IFB) package Appendix, p. A.77. The IFB package is a complete set of instructions that should include:

- detailed product information including specifications and quantity required
- general terms and conditions for doing business with the school district
- special terms and conditions
- bonding requirements, bid sureties, etc. when required under state and local regulations
- pre-bid conference
- basis for contract award
- explanation of how bidders can demonstrate compliance with bid requirements
- service and warranty provisions
- delivery and installation instructions
- cost provisions
- non-collusion, anti-conflict of interest statement
- envelope to be used for submission of the sealed bid
- time and place for formal public opening and recording of bids
- certification regarding suspension, debarment and voluntary exclusion

Informal Bids

Competitive submission of the bids require the bidder to provide a written sealed bid to the potential purchaser. Written terms and pricing are required to ensure both parties understand each other's expectations. It is recommended that bidders using small purchase procedures provide a written quote to the potential purchaser. The next step is to establish a system of documenting your procurement process. Your permanent documentation files should include the following information for each informal bid submitted:

- name of the dealer quoting the price
- name of the individual quoting the price
- the manufacturer and model number of the equipment offered
- the unit price
- the payment terms
- the promised delivery date
- duration of the quote

A standard form is typically used to maintain consistency and ease of record keeping.

The general terms and conditions for doing business with the school district, or *boilerplate* Appendix, p. A.93 is of utmost importance to the potential bidder. The boilerplate delineates the school district's expectations for the procurement project and is standard for all formal purchases made by the district. Bidders must consider those expectations carefully before investing the resources to bid the project. The boilerplate is standard for all bids.

In addition to the general terms and conditions, the IFB includes special terms and conditions unique to the equipment being purchased. Areas addressed under special terms and conditions may include:

- delivery and installation instructions
- training or demonstrations for all operators
- special servicing requirements

Receipt of Bids

When bids are received, each one must be time-stamped and dated upon receipt. Bids are then deposited in a secure box, safe, or file until the designated opening time. Unsealed bids or bids received after the designated time and date of bid opening are not accepted.

Each bid is opened publicly and recorded in the presence of interested parties. The following information is read aloud for each bid:

- name of bidder
- price
- equipment offered
- payment terms
- FOB point
- delivery date

After opening all bids, each one must be evaluated using the criteria established in the IFB. Federal regulations require that the award be made to the lowest price responsible bidder whose bid conforms to the bid document. Competitive negotiation, in which an RFP is generated, considers price and other factors. Normal policy and legal guidelines provide that bids shall be awarded to the lowest price responsible bidder who submits the responsive bid. Evaluation of the bids must compare the equipment offered with those requested by the specification.

Traveler's Tip

As the CNP director, you have the authority and the obligation to take certain steps which protect the integrity of your procurement process. Part of this obligation requires that you reject bids that:

- **Do not meet IFB requirements;**
- **Are submitted unsealed in sealed bid situations;**
- **Are for items of equipment that do not meet IFB specifications;**
- **Changes to the terms and conditions of the IFB;**
- **Bids from suppliers that are not responsible bidders.**

Evaluating the Bids

Bid comparison is an analytical process that requires careful consideration. Each bid must be carefully reviewed to ensure your satisfaction that the school district accepts the most advantageous bid.

Phase 1 Determine the Lowest Bidder's Responsiveness and Responsibility

The first step is to determine if the bidder responded to all of the material terms and conditions of the IFB. This is known as bidder responsiveness. Any deviation from the IFB indicates a non-responsive bidder and the bid may not be considered for the award. Examples of unresponsive bidders:

- delivery schedules that vary from the bid requirements
- bidder makes the school district responsible for determining that alternates conform to the specifications
- bidder who fails to furnish bid bonding requirements, bid sureties
- bidder fails to complete required certification or attachment

Phase 2 Establish the Lowest Bidder's Price

To establish the true lowest bidder price, follow these steps:

Step 1 Compare prices.
Step 2 Check for clerical errors.
Step 3 Calculate prompt-payment discount offers (if applicable).
Step 4 Determine any additional shipping costs.
Step 5 Calculate the lowest net cost.

Using these figures, determine if it will be advantageous to make a multiple award or an aggregate award. In other words, your bid award can be a line item award or a bottom line award just like food purchases are awarded. This decision should be made known to all bidders in the IFB.

This chapter and the bid process are an important aspect of the equipment purchase process. If you have any questions at this juncture, you may want to contact a professional colleague, your State Office of Child Nutrition, Food and Nutrition Service of USDA or a district procurement expert for guidance and support.

Traveler's Tip

Be sure the bid does not include tax. Most child nutrition programs are tax-exempt.

References for Chapter 8

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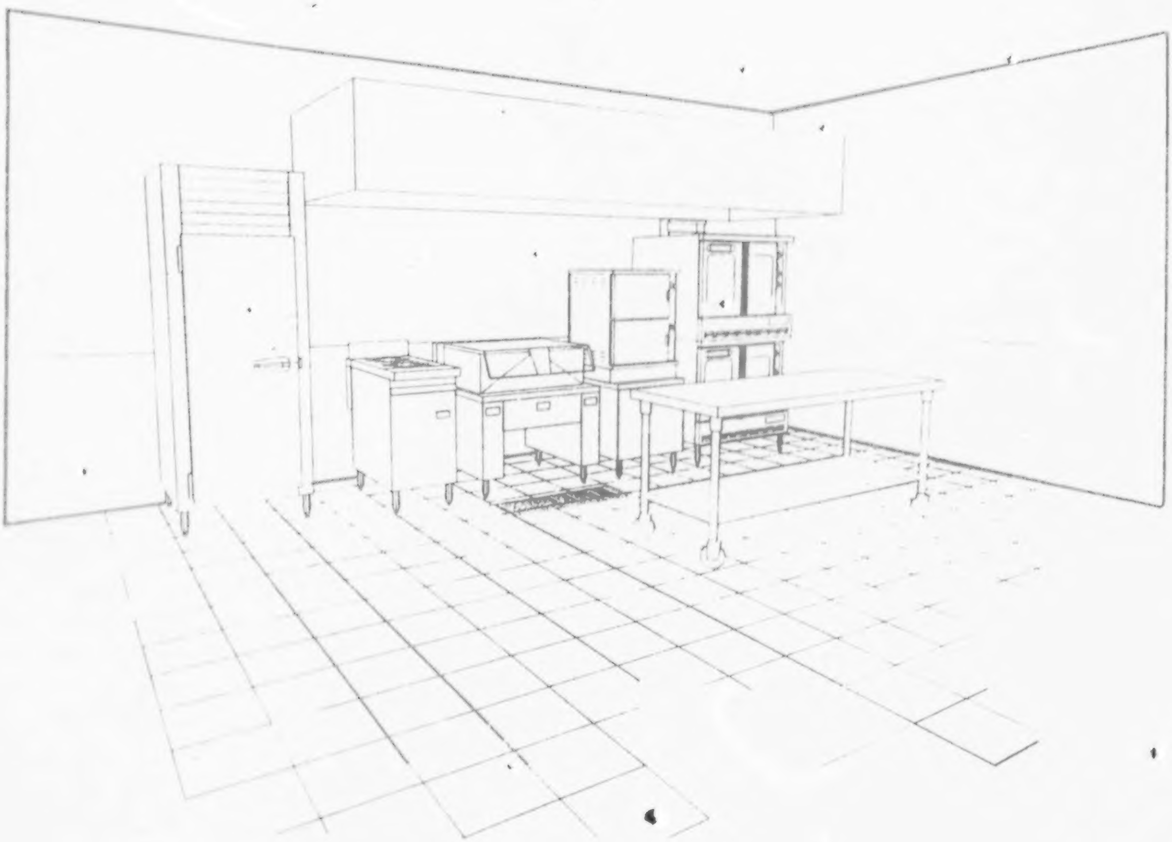
Chapter 9:
Receiving Process



OVERVIEW

Receiving initiates the beginning of the end or the completion phase of the procurement process. This is when the accuracy and completeness of your specifications will be ascertained. Chapter 9 provides you with a series of checklists to assist you in implementing your receiving plan. In addition, a competency assessment tool is provided to evaluate operator competence using the new equipment.

NEW CONSTRUCTION
RENOVATION
REPLACEMENT

The Journey's End

Beginning the receiving process means you are nearing the end of your journey. This is the completion of the procurement process and the last major step before your new kitchen or new pieces of equipment are ready to use. During the receiving process, which is a quality assurance step, you will determine the accuracy and completeness of your specifications. The success of the receiving process is determined by the information provided in the specifications and bid document. If you missed an important detail in the specification process, it will not suddenly correct itself at delivery.

Since the success of the receiving process is determined by the specification and bid document, you should have designated the following instructions:

- where the equipment is to be shipped
- who is to deliver the equipment
- who will unload the equipment
- who will uncrate the equipment
- who will set the piece(s) in place
- who will make the final utility connections
- who will do the start-up
- who will provide the use and care demonstration

Traveler's Tip

Remember that the receiving process can be smooth sailing or treacherous traveling. Even with the best plans, things can and will go wrong. Be sure you have a plan for unexpected delays.

Be prepared to follow up on your previous investigation:

- Is there a receiving dock?
- Does the delivery truck need a gate lift?
- Are dollies or hand trucks required?
- What is the size and weight of the crate?
- What is the measurement of doorways - height and width?
- Will the new equipment fit through the doorway?
- What is the width of the aisle space in the kitchen?
- Will tables and other pieces of equipment need to be moved temporarily?

- Has a utility requirement been provided?
- Have exhaust requirements been met?
- Does water need to be filtered?
- Are all permits secured?
- Has the installer been notified?

Traveler's Tip

Utility requirements include:
Electrical **- voltage, cycle, phase, amp, load**
Gas **- type, BTU, pressure, flow**
Water **- pressure requirements**
Steam **- flow, pressure**
Drains **- size, location**

Receiving Plan

Step 1 Preparing the Site for Installation

Site preparation is a critical step in determining your satisfaction with new foodservice equipment. Making simple mistakes or overlooking details can impact the efficiency and usability of your equipment. Pay close attention to the details of installation to achieve maximum usability of the equipment you selected.

Traveler's Tip

Ensure that security is available on site. Don't fall victim to stolen or damaged items. Have small pieces of equipment delivered last in new construction.

Step 2 Receiving from the Shipping Company

Receiving the new equipment from the shipping company may feel like a "traveler's rest" on this long journey. There are, however, set procedures that must be followed regardless of who initially received the equipment from the manufacturer. The foodservice equipment dealer, the school district warehouse personnel, and school personnel must understand and follow the set procedures in order to avoid problems documenting damage, shortage, or warranty claims.

In most cases, foodservice equipment is shipped *FOB Destination, Freight Prepaid.* This means the manufacturer handles claims for damage or shortage. However, any damage or shortage must be noted on the freight bill to initiate the process and to expedite the claim. On occasion, damage occurs during shipping and handling.

When equipment is received, it must be inspected for damage or shortage. First, inspect the crate for obvious damage. Even if the crate appears in excellent condition, the equipment may sill be damaged. Next, thoroughly inspect the equipment to determine if there is any concealed damage. Remember, there are time limitations for filing freight claims. Any discrepancies - damage or shortage - should be noted on the freight bill *before* the carrier leaves.

Traveler's Tip

Be prepared for unexpected damage or shortage related to your new equipment. Have a plan in place to repair or return any damaged equipment. Also, have a source for replacement parts or total replacement of the equipment.

Reality Check Point

Midwest School District purchased a convection oven from a local dealer. In the bid document, the dealer was responsible for receiving, delivering, uncrating, setting in place, and preparing for connection by others. It was a busy day at the dealer's loading-receiving area. The new convection oven was received without inspecting its condition. The dealer was actually waiting for other equipment to be received for the same school, which was expected in another month. The convection oven was delivered to the school and the process was begun to uncrate and set in place. At that time, the CNP director made a startling discovery. The manufacturer had sent the wrong oven and it had to be returned. The reorder would take several weeks to deliver so an alternate production plan had to be devised because school was opening. This major delay could have been avoided by the dealers' inspection of the equipment.

Step 3 Uncrating the Equipment

The process is actually more challenging than it sounds. Keep the crates in useable condition and don't throw them out immediately. You will need the crates to return any equipment sent in error. Keep in mind that damaged equipment or equipment sent in error must be returned.

Traveler's Tip

What do you do if the warehouse personnel throw away the crate and you need to return the equipment to the manufacturer? You will have to request a new crate from the manufacturer. This process wastes valuable time and delays resolution of your equipment dilemma. Be sure the warehouse personnel keep the crates in useable condition until you authorize them to discard them.

Once the equipment is carefully uncrated, check the manufacturer's data plate to be sure this is the piece of equipment on the bid document. If the data plate does not *exactly* match the specifications, it will probably need to be returned to the manufacturer. The data plate will indicate the following information:

- manufacturer
- model number
- electrical specifications (voltage, cycle, phase)
- gas specifications (BTU, gas type)
- steam specifications

Traveler's Tip

Where is the data plate located on the equipment? Almost *anywhere!* There is no set place for the data plate. It may be on the back, front, or side of the equipment. It may be inside the door facing. Each manufacturer puts the data plate in a different spot. Also, the location varies with each piece of equipment. You may need to look!

What do you do if the data plate does not *exactly* match the specification? Contact the equipment dealer or manufacturer's representative. Do not proceed any further with your receiving process. You have not received what you ordered. This means a detour in your journey.

Step 4 Installation

Site preparation must be completed prior to the installation of the equipment. Ideally this process will be completed and all regulatory inspections passed prior to the receipt of the equipment. Site preparation will vary according to the types of equipment. For example, walk-ins have to be erected and hoods hung while other pieces of equipment are simply set in place. To ensure that you can install the equipment right away, verify the status of the site preparation schedule to avoid unexpected delays. Each piece of equipment has unique requirements for clearances and utility connections.

It is usually prudent to clarify the distance between the equipment and the utility connections. It is recommended that installers visit the site before the actual installation to determine wiring, piping, and conduit materials required for the job.

Now that the site is prepared as specified, installation can be scheduled. Proper installation is essential for equipment to operate effectively and efficiently. Over 80% of early warranty claims to manufacturers are the direct result of poor installation and environmental problems. This is why the manufacturer provides detailed installation procedures and requirements for site preparation. However, if the installers interpret the instructions incorrectly or simply ignore them, the equipment will not perform as expected.

Certain types of equipment have specific instructions regarding clearances. The clearances are determined for operating and maintenance purposes and should be followed. For example, most steam equipment requires open-gap drain connections. Manufacturers recommend placement and length of drain pipes to drains. If these instructions are followed, expect the equipment to function properly.

Traveler's Tip

Problems resulting from improper installation are *not* a valid warranty claim. A bad installation can destroy a piece of foodservice equipment in minutes.

Step 5 Start-Up

Once all aspects of installation have been completed according to the manufacturer's instructions and the proper power has been connected, the start-up can be arranged. Start-up may be the responsibility of the installer. Many manufacturers provide start-up service by the authorized service agency.

The start-up includes:

- on-site inspection to verify the equipment was installed according to manufacturer's instructions
- on-site inspection to verify the equipment is operating properly
- re-calibration (if needed) as it may have slipped during shipping and handling (not a warranty item)

Traveler's Tip

The CNP director or designee needs to tag equipment to its specific location and log in model, serial number, etc. The CNP director should retain shop drawings on special order items.

After the start-up has been completed, return all warranty cards to the manufacturer. Also secure permits (if required) and arrange for final inspections by local regulatory agencies.

Step 6 Use and Care Demonstrations

The final phase of the receiving process is to arrange for a use and care demonstration from the manufacturer's representative. The demonstration should include:

- how to operate the equipment safely
- introduction of use and care manuals
- correct instructions on daily care and preventative maintenance
- helpful tips on the use and care of the equipment that are not in the manual
- hands-on operation for each participant

Traveler's Tip

Be sure the person doing the use and care demonstration is a qualified trainer representing the manufacturer.

Do not request this demonstration until the equipment has been certified for proper connection and start-up is complete. At that time, it is essential that all CNP staff and substitutes as well as all district maintenance staff attend the demonstration. Consider video taping the demonstration for use in follow-up training and for training new employees.

Traveler's Tip

The installation job is not complete until the production staff cooks the first meal with the new piece of equipment!

Some manufacturers may provide use and care videos for additional staff training. It is recommended that hands-on operation, including the preparation of several menu items, be used. Follow videos during this practice to enhance operator confidence and to ensure operator competence. Each operator needs to demonstrate competence in the proper use and care of the equipment to the unit manager. Competency assessment is essential to verify that the employee can operate the equipment properly. All operators need to sign the use and care manuals or equivalent document to verify their attendance at the demonstration.This is an effort to document all in attendance for liability purposes.

Traveler's Tip

Request multiple copies of the use and care manuals in your bid document. One set is for the school foodservice manager, one set is for the maintenance department, and the other copies need to be filed for future construction or renovation projects.

Competency Assessment Checklist

Equipment ______________________________ Employee ______________________________

Competency	Date of Initial Training	Date of Competency Verification	Date of Annual Competency Verification
Employee demonstrates the correct use of equipment according to the manufacturer's use and care manual.			
Employee demonstrates correct safety procedures in the use of equipment.			
Employee demonstrates the proper techniques for cleaning and sanitizing equipment as described in the use and care manual.			
Employee demonstrates proper preventative maintenance recommended for optimal care of the equipment.			

Comments:

Evaluator: ____
Date: ____

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Chapter 10:

Alternate Purchasing Strategies

Chapter 10: Alternate Purchasing Strategies

OVERVIEW

This chapter explores the benefits of being creative. Yes, as you explore equipment purchasing options, you may want to take advantage of alternate methods to acquire equipment. As long as the guiding principles are still met, an alternate purchasing strategy may be cost effective and efficient.

The purchasing process which has been outlined in the preceding chapters should continue to be followed even as you explore these alternate options. Those options briefly described in this chapter are: pre-owned equipment, leasing, and cooperative purchasing.

NEW CONSTRUCTION
RENOVATION
REPLACEMENT

Pre-Owned Equipment

Very popular among restaurants and for-profit foodservice operations, pre-owned equipment often reduces capital outlay before an operation becomes established. Pre-owned equipment deserves serious consideration by school foodservice professionals. The pre-owned equipment may be on the market due to:

- under capitalized business having to sell it
- failed business venture
- menu change
- output (performance, capacity) requirements changed
- upgrade/trade-in

Traveler's Tip

Mismatching voltage is a problem in pre-owned equipment. If you have a piece of pre-owned equipment that has never quite worked like you thought it would, check the voltage. The difference in heat output, energy consumption, and production on a 230 volt piece of equipment operating on 208 volts is 25% less. In each of these cases, there is nothing wrong with the equipment. It is just not right for the situation.

Pre-owned equipment may be a good value for one of your schools and it may be a good decision if:

- it is in excellent working condition
- it is partially or totally refurbished, i.e., new parts, repainted
- it is non-mechanical, this equipment is usually a good value as there are no electrical or motor parts
- it meets CNP needs

Examples include:

- work tables
- reach-in cooler/warmer
- metal shelving
- ovens
- kettles/braising pans

In other words, some equipment requirements lend themselves to the purchase of a pre-owned model more than other equipment.

Traveler's Tip

When considering purchasing pre-owned equipment be careful of:

- **high maintenance equipment**
- **electro-mechanical controls may be a better choice compared to solid state or micro processor base**
- **equipment using water such as: steam cooking equipment, ice machines, dishwashers**

All of these pieces of equipment should be carefully examined by an expert.

Be sure to choose pre-owned equipment that is safe to use and for which current operator safety devices are still usable or available (safety guards on slicers). Always use a reputable dealer who may offer a 30-90 day warranty. They may even provide a history of the equipment. It is recommended that you have a service agency verify credibility of equipment before you make a commitment to purchase it.

Traveler's Tip

Check equipment to be sure it is a good investment. Ask if parts are still available. Manufacturers are required to make parts available for 10 years. Remember to check environmental and local code regulations. For example, there are new regulations on coolants/refrigerants.

In summary, pre-owned equipment, especially pieces without mechanical parts, may make sense for your program. Identify the reputation of pre-owned equipment companies in your area. Put each piece through its paces. If they measure up, these pre-owned pieces may provide good value.

Leasing Equipment

Another option to consider is the lease of certain pieces of foodservice equipment or lease purchase.

Benefits of leasing include:

- method of financing may be less than a traditional loan
- relinquishes responsibility of ownership, i.e., maintenance, both routine and scheduled
- reduces risk of ownership for experimental menu offering and special events
- disposition is automatic

Downside of leasing:

- may be more expensive than traditional loan process in final total fee
- obligation of product such as chemicals, coffee, soft serve yogurt, or ice cream machines
- at the mercy of the leaser for ongoing maintenance

Before you lease a piece of equipment, be sure to know all the facts. You will want to calculate total cost, maintenance plan, and buyout. If you are in doubt about leasing equipment, procurement experts in your district should be able to give you guidance.

Cooperative Purchasing

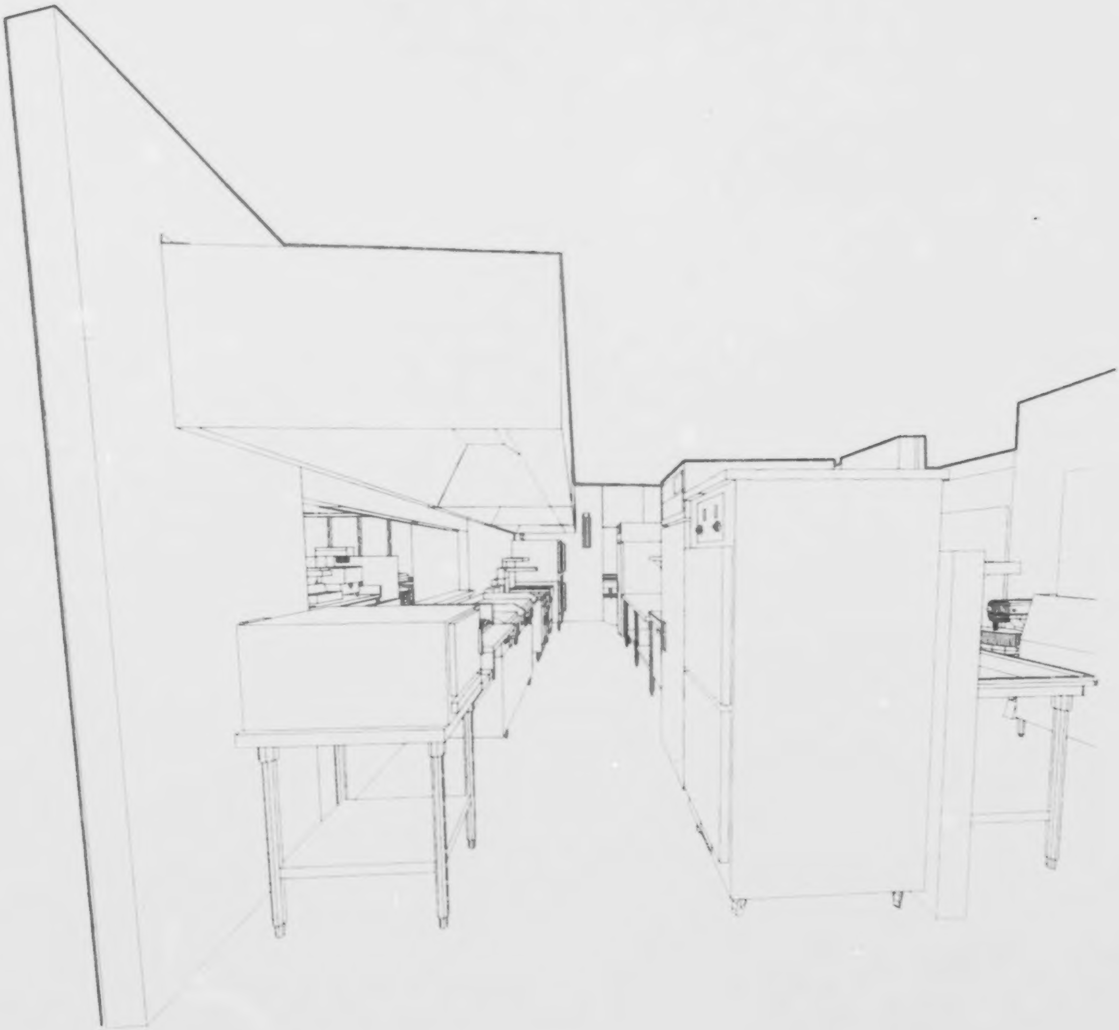
Cooperative purchasing options may be available with a neighboring school district or with districts within your state or region. Perhaps you are currently participating in group purchasing for food and supplies. If not, you may find this method:

- enhances buying power
- saves some of the time involved in the procurement process
- provides you with additional resources or ideas

Summary

In summary, you will find that a little extra effort or creative exploration may lead to a different method of acquisition. Remember, all other steps in the process remain the same.

Glossary



A la Carte: Food items sold separately from the meal at a separate price for each item.

Absolute Pressure: Any pressure measured above the absolute zero of pressure.

AC: Alternating current; air-conditioning.

Accessory: Variance from the standard production model that may be added later as a part.

ADA: Americans with Disabilities Act.

ADA: The American Dietetic Association.

AGA: The American Gas Association, their seal of approval is required for gas equipment.

Aggregate Award: The purchase of all equipment is from one vendor. This is also called a bottom line award.

AIA: American Institute of Architects.

Air Curtain: A device mounted above a door which discharges air at a downward velocity to prevent insects from entering the building.

Air Gap: A clear air space that is between an outlet of drinkable water and a drain.

Allowable Working Pressure: Maximum gauge pressure permissible in a vessel after test and approval by an authorized authority.

AMP: Ampere, the standard measure of the strength of an electrical current.

ASME: The American Society of Mechanical Engineers, their seal of approval is required on steam equipment.

ASTM: American Society for Testing and Materials. They set standards for materials.

Atmospheric Pressure: Pressure exerted by the weight of the atmosphere, usually measured by means of a barometer.

Automatic Blowdown: Process where boilers or steam generators automatically drain water (blowdown) when equipment is turned off.

Back Shelf Ventilator: A system for catching and removing heated air and steam close to the point of origin (can be used instead of a canopy or hood when no top-surface cooking is being done).

Back Pressure: Pressure generated by expansion in the condensate return line, forcing water back toward the vessel.

Baker's Table: Table whose top has 4″ to 6″ high curbing along the rear and sides to minimize spillage of flour onto floor during preparation.

Base Kitchen: A kitchen that prepares food for other units or schools to serve.

Bid-rigging: Illegal practice of vendors to agree to bid high, low or not at all for designated purchasers as a way to eliminate competition.

Bidders' List: A list of equipment dealers or distributors from whom you plan to solicit bids.

Bin: Semi-enclosed, rectangular or round container, open on top, with or without lift-off, sliding, or hinged cover.

Blast Chiller: Refrigeration unit that chills foods from 140° F to 37° F in 90-120 minutes or less.

Blower Coil: The part of a refrigeration system that "blows" the refrigerated air into the cabinet or walk-in box.

Boiler: Steam generating equipment, either self-contained within a piece of steam cooking equipment or remotely located. Commonly used in the *Handbook of Steam* (NAFEM, 1994) in place of "generator," which typically refers to a smaller, lighter type of boiler.

Boiler Horsepower: 1 Boiler Horsepower equals 33,475 BTU/hr. Used for rating steam equipment.

Boilerplate: Precondition document section 11400 Food Service Equipment Specification. Compilation of special terms, general terms and conditions required for the bid. This information is included in the invitation-for-bid package.

Bottom Line Award: All the equipment is purchased from one vendor. This is also called an aggregate award.

Braising Pan: A large griddle with 7″ to 9″ sides mounted on pivots allowing it to tilt and dispense the food cooked in it.

Branded Foods: Identification of foods by brand name or organization as designated name.

BTU: British thermal unit. The amount of heat required to raise the temperature of one pound (0.5 kilogram) of water 1 degree Fahrenheit (0.6 degree Celsius).

Bucket Trap: A mechanical steam trap that operates on the difference in density between water and steam.

Buffet: A variety of foods arranged on a counter for self-service and selection.

Building Code: A document adopted by the local authority (city or state) which is enforceable by law.

Buyout: Payment due at the end of a lease to own the equipment.

CAD: Computer aided design.

Calorie: A unit for measuring heat. A unit of energy-producing value in foods. Also called Kilocalorie.

Can Rack: A special rack used to dispense standard tin cans (such as #10 cans) one at a time.

Cantilevered Installation: Equipment supported by in-wall carrier with no legs.

Centimeter: A metric length equal to 0.39 inch.

Centralized Food Production Facility: Foodservice system designed to prepare food for large groups. They may serve food on-site or prepare one or more menu items for off-site delivery, catering or vending machines. Items may be ready to serve or require finishing preparation when received.

CFH: Cubic feet per hour. Units used to measure the flow rate of natural gas to an appliance.

CFM: Cubic feet per minute. Units used to measure the volume of air flowing through a ventilation system.

Char Broiler: A broiler with open grids over a bed of charcoal or ceramics usually fired by gas.

Chase Mount: Equipment mounted to a chaseway and supported by legs.

Chaseway: Structure within which the utilities for a Utility Distribution System are located.

Check Valve or Non-Return Valve: A mechanical valve designed to allow steam or water to travel in one direction only.

Clean Steam: Steam containing no chemical contaminants or other non-potable elements. Clean steam is essential for direct-steam cooking.

Cold Water Cooling: Process of circulating cold water through a kettle jacket to rapidly remove heat from product.

Combination Oven-Steamer: A convection oven with a built-in steam source. It can combine steam and convection oven abilities, or it can use each separately.

Compactor: A machine for crushing or compacting foodservice waste.

Competency Assessment Tool: List of statements that signify the level of performance expected of an employee. All competencies should be demonstrated by the employee and verified by supervisor.

Condensate Ring: Lip on kettle and braising pan, cover which diverts condensate on covers back into kettle or pan.

Condensation: Process of steam vapor changing to water as it cools.

Condensing Unit, Refrigeration: A mechanical compressor used as an air- or water-cooling device.

Conduction: Transfer of heat from molecule to molecule by direct contact, e.g. food cooked directly on grill surface.

Construction Specifications International: System of cataloging bid specifications in the construction industry.

Continuous Improvement Tool: Instrument used to enhance, improve or re-engineer a system or process.

Continuous Quality Improvement: Ongoing process of improving, enhancing, and re-engineering the system or process using concrete data to better meet customer needs and expectations.

Convection: The transfer of heat, e.g. food baked by hot air forced over it by a blower.

Convection Oven: An oven, gas, or electric, in which the heat is circulated through the chamber by a fan or blower system.

Convenience Foods: Food items that have been processed before delivery and that may or may not require additional preparation before serving.

Cover: A single place setting.

Critical Path: The sequence of moving equipment from the manufacturer to the end-user's site where it is installed and certified as functioning.

Critical Path Planning: System of planning that allows the purchaser to organize the purchasing process by working backward from the date of operation.

Crystallizing The Vision: Process of putting your vision of the new equipment/kitchen on paper.

Cubic Footage: Gross interior space. The term is often used to describe refrigerated and freezer space.

Cuisine: A distinctive method of preparing and serving food.

CW: Cold water.

Cycle Menu: A menu which changes in a prescribed fashion and repeats itself regularly in a cycle.

dB: Decibels, a measure of sound levels. A level below 50 dB is a quiet level, and a level above 90 dB is a danger level.

DC: Direct current.

Design: A scheme for developing the overall function and the entire concept of a foodservice operation.

Dining Area: The area provided for the consumption of food proceeding from the serving area to the eating area and including that eating area.

Direct Steam Appliance: Any appliance which uses steam generated from other sources, such as a central steam line or another appliance's boiler.

Direct Steam Cooking: Cooking method used by most steam equipment. Steam makes direct contact with food, transferring its heat to the food.

Dishwashing Area: The space provided for washing, sterilizing, and drying the dishes and utensils used in preparing and serving food.

Dishwasher: A machine designed to automatically wash, rinse, and sanitize food service utensils. *Dishwashers are available in the following types:*

> ***Under counter:*** The dishwasher is located below the counter. Utensils are placed in a 20"x 20" rack and washed one rack at a time. Cycle time is approximately 1½ to 2 minutes per rack.
> ***Door type:*** The dishwasher is located at counter level. Utensils are placed in a 20"x 20" rack washed one rack at a time. Cycle time is approximately 1 minute per rack.
> ***Conveyor:*** The dishwasher is located at counter level. Utensils are placed in a 20" x 20" rack and inserted into the dishwasher which automatically moves the racks through the dishwasher. Capacity ranges from approximately 125 to 270 racks per hour.
> ***Flight type:*** The dishwasher is free standing and loose utensils are placed directly on a peg conveyor belt and automatically conveyed through the dishwasher. Cups, glasses and flatware are conveyed on 20" x 20" racks. This type can be used for self-busing.

Disposables: Dishes, glasses, cups, trays, pans, and table accessories intended for single use before throwing away.

Dry Steam: Steam which has been completely evaporated so it contains no droplets of liquid water.

Due Diligence: Process to prove that everything has been done. For example, temperature documentation to help prevent foodborne illness.

Dunnage Rack: A mobile or stationary platform used for storing bulky items, stacked cases, or sacks.

Efficiency: The ratio of energy absorbed by the food to the total energy supplied to the appliance.

Electro-processor Based Controls: Equipment with digital readouts, touch pads and computer programming options used to set variables required by the recipe such as cooking temperature.

Employee Facilities: Toilet areas, storage of personal items, and/or an area for changing clothing.

FC: Footcandle. A measure of the luminance (brightness) of a surface.

FD: Floor drain.

Finishing Kitchen: A kitchen that receives prepared foods for reconstituting or heating, assembling, portioning, and serving.

Fire Suppression System: A system of pipes and nozzles found in the exhaust hood over the cooking equipment. The system is automatically activated when fusible links melt due to the detection of fire. Most common types are dry and wet chemical agents or a water "mist" or "fog."

Flash Steam: Evaporation of hot condensate or boiler water when released to a lower pressure.

Flow Diagram: A graphic representation of the movement of food products through the preparation and serving process.

Flow of Food: A path from receiving through storing, preparation, serving, cooling, and reheating that food follows in a foodservice system.

FOB: Freight on board. Used in freight and delivery specifications.

Food Boutiques: Retail activity zones where specialized foods and meal components are served.

Food Court: Foodservice system in which students select from various specialty stations such as taco bar, pizza bar, salads, desserts, etc.

Food Production Center: A facility in which food is prepared to be served at another location.

Freezer: Storage space at a temperature of zero degrees Fahrenheit (-17.8 degrees Celsius) or below.

Fryer: A floor- or bench-mounted unit for cooking in deep fat or oil.

Gauge Pressure: Pressure measured above atmospheric pressure.

General Contract: The construction contract. All equipment that is to be attached to the building is usually included in the general contract.

Generator: A smaller, lighter type of steam boiler. Term is often used as a synonym for "boiler."

GPM: Gallons per minute.

Grease Filter or Extractor: A rectangular or round frame with several layers of wire mesh that is mounted in the exhaust system for removing grease.

Griddle: A stove-top cooking unit with extra-thick steel plating.

Group Trapping: A number of vessels working at the same pressure, which are drained by a single steam trap.

Guiding Principles: Fundamental beliefs that direct all decision-making processes.

Hazardous Analysis Critical Control Point (HACCP): Food safety system that focuses on the flow of food in a foodservice operation to reduce the risk of foodborne illness.

Heat Lamp: A heating device, usually infrared, used to hold food hot for service. They are available in various types and sizes.

HP: Horsepower.

HVAC: Heating, ventilation, air conditioning.

HW: Hot water.

Ice Dispenser: A machine that dispenses ice directly into a container. They may be manual fill or automatic with a connected ice machine.

Ice Machine: An automatic machine that freezes water into a variety of shapes and stlyes; usually cubes, tubes, or flakes.

ID: Internal diameter.

IES: Illuminating Engineering Society.

in. W.G.: Inches (Water Gauge). Units used to measure the pressure inside of duct work.

In-Wall Carriers: Wall support structure for wall-mounted equipment.

Industry Channels of Distribution: How equipment makes its way from the manufacturer to the ultimate end-user.

Ingredient Bin: A bin, usually mobile on casters, to hold bulk quantities of ingredients such as flour, corn meal and sugar.

IPS: Iron pipe size.

ISO-9000: International Standards Organization developed standards for manufacturers and service agencies to define quality manufacturing controls.

Kiosks: Small, freestanding structure with one or more open sides used for point-of-sale or point-of-service.

Kitchen: A room or some space with facilities for preparing food.

KW: Kilowatt = 1,000 Watts.

KWH: Kilowatt hour. One kilowatt hour, the energy expended by one kilowatt in one hour, is equal to 3,412 BTU.

Layout: The arrangement of physical facilities and equipment within an area.

Lazy Steam: A common term for pressurized steam.

Life-Cycle Costing: Process of determining the total cost for ownership. It takes into account all costs including total operation, maintenance, repair, and disposal of product calculated at present value.

Line Item Award: The equipment is purchased from more than one vendor. This is also called a multiple award.

Loading Area: The space outside the kitchen that is used for the pickup and delivery of food and non-food items.

Lowerator: Spring-loaded containers for dishes, trays, cup racks, glass racks, etc. Dispensers are self-leveling and may or may not be heated.

Maintenance Area: The space provided for holding and disposing of refuse and for washing equipment that is used for this purpose.

Make-up Air: Ventilation air introduced into a building to replace air exhausted by a fan or combustion.

Marché Concepts: Foodservice system based on European open-air marketplaces with emphasis on visual display, exhibition preparation, and random points-of-service.

Meter: A unit of length equal to 39.37 inches.

Microwave Oven: An oven which heats (or cooks) food rapidly by using microwaves. Microwaves are a radiant energy similar to radio waves.

Mirror Image: Reverse counterpart of standard equipment model.

Mission Statement: Affirmation of the organization's philosophy and goals.

Multiple Awards: The equipment is purchased from more than one vendor. This is also called a line item award.

NEMA: National Electrical Manufacturers Association.

NFPA: National Fire Protection Association. This organization publishes NFPA Bulletin 96, which may be obtained from the local fire-protection agency.

Non-Return Valve or Check Valve: A mechanical valve designed to allow steam or water to travel in one direction only.

NSF: National Sanitation Foundation. This organization's seal of approval certifies compliance with specified sanitary design requirements.

OD: Outside diameter.

Office: The space used by the foodservice manager for general management duties such as record keeping, menu planning, ordering, filing, money-handling, administration, consultations with foodservice, and other personnel and meeting public visitors.

Onsite Kitchen: A kitchen that prepares and serves food at the same location.

Operating Pressure: Actual pressure at which a vessel is maintained in normal operation.

Operationalize: Process of transforming a theory or vision into reality or practice.

Option: Variance from the standard production model that must be specified at the time of order. An option may not be added later.

Oven: Fully enclosed insulated chamber with gas, electric, or oil-fired heat, provided with thermostatic control.

Packaged "Componentized" Meals: Prepackaged, reimbursable meals served in pick-up and go fashion.

Portion Packets: Usually referred to as PCs; individual servings in disposable packets of crackers, jelly, syrup, mustard, ketchup, etc.

Pot/Pan Washer: An automatic machine similar to a dishwasher designed specifically to wash and sanitize pots and pans.

Potable Steam: Sanitary source of steam suitable for drinking.

Preparation: The space provided for the total processing of foods from raw to ready-to-eat. This may involve baking, boiling, steaming, re-heating, raw vegetable, and fruit preparation.

Pressure Reducing Valve: A mechanical device that reduces incoming steam pressure to a lower set pressure.

Pressure Steamer: Steamer which uses a pressurized cavity for cooking.

Pressurized Steam: As steam pressure rises, so does cooking temperature; e.g., at 0 psi, a steamer cooks at 212° F, but at 15 psi, it cooks at 250° F.

Price-fixing: Illegal practice of vendors to agree to set or maintain prices at a given level to eliminate competition.

Prior Approval Alternate/Equal/Equivalent: Statement used in brand specification meaning items equivalent in quality to the specified brand names will be accepted by your program.

Processor (Food): A small motorized appliance used for the high-volume chopping, dicing, slicing of fruits and vegetables. Some are equipped with a mixing bowl attachment for pureeing ingredients.

Prompt Payment: Discounts are usually offered when payment in full is made within a given time frame.

Proof Box or Cabinet: An enclosed area with a heater and humidifier.

Prospectus: An operational model of the foodservice areas.

PSI: Pound per square inch; the units used in measuring steam pressure.

PSIG: Pounds Per Square Inch Gauge.

Pulper/Extractor: A large waste grinding device similar to a disposer that grinds the waste into a pulp or slurry. The slurry is then transferred to an extractor where the water is pressed out. The semi-dry material is then discharged into a waste container. A pulper/extractor can reduce waste volume by as much as 80%.

Punch List: A list of the problems or the incomplete work at a construction site that must be fixed before the building is accepted as complete.

Purchasing Cycle: The time required to move equipment from the manufacturer to the end-user's site where it is certified as functioning.

Quick-Disconnect: A pipe coupling with an internal shut-off valve allowing equipment to be easily disconnected and moved for cleaning or service, usually with gas and water supplies to equipment.

RFP: Request for proposal.

Range: A piece of equipment used for top-surface cooking that has an oven at the bottom.

Receiving: The space provided for the unloading of food and non-food products from commercial trucks and for checking orders for quantity and completeness.

Receiving Kitchen or School: The school kitchen that receives prepared foods from another preparation center (also referred to as serving kitchen).

Receiving Scale: A scale located in the receiving area of the kitchen to weigh-in delivered goods.

Refrigeration: The areas or units that keep food at a temperature below 40° F, including refrigerators and coolers.

Refuse Area: The area including space for the storage and washing of garbage cans and dumpsters.

Responsive Bidder: Bidder who meets all of the requirements of the invitation for bid.

Rethermalization: Reheating to the appropriate temperatures.

Running Load: Average rate of condensate passing through a stabilized system.

SBCCI: Southern Building Code Congress International. Organization which writes a model building code.

Scale: The relationship of the size of a floor plan drawing to actual floor dimensions. The ratios most frequently used are ⅛" (0.3 centimeters) equals 1' (30 centimeters).

Self-Contained Kitchen: A kitchen in which food is prepared and served on the premises. Also called on-site production kitchen.

Self-Contained Steam Appliance: Any appliance which relies on its own boiler for steam generation.

Serving Area: The space where food is served to the customer. It includes the display of various food offerings, both hot and cold, and the holding and replenishing of these food items as needed.

Signature Item: A food item for which the foodservice operation is known. Customers come to the foodservice operation specifically to purchase the item.

Sink Sanitizer: A water heating device, usually electric, that maintains the water temperature at sanitizing temperature of 180° F or above.

Slicer: A motorized food slicing device with a circular cutting blade. May be manually operated or automatic.

SMACNA: Sheet Metal and Air-conditioning Contractors National Association.

Soffit: A sound-absorbent material that can be put above the serving line to reduce noise and improve the appearance of the serving area.

Solid waste: Waste that includes bulky and dry trash like glass bottles, plastic wrappers, paper bags, and cardboard.

SP: Static (air) pressure.

Specification: A concise statement of a set of requirements to be satisfied by a product, material, or process.

Specification Sheets: Written materials prepared by manufacturers to describe their equipment and document important engineering information.

Steam Coil (Shell): Heat exchanger built into boiler shell which heats house (contaminated or dirty) steam to create clean steam from potable water supplied to boiler.

Steam Locking: A condition where steam is trapped in the condensate line, preventing the steam trap to properly discharge water (condensate).

Steam-Jacketed Kettle: A kettle that holds steam between the interlining and the outer shell.

Steamer: A cooker with compartments in tiers that cooks with low-pressure steam.

Storage: The storage of consumable food (dry, frozen and refrigerated) and non-consumable products in case lots, bulk packages, and broken case lots on shelving pallets or dunnage racks. Also includes storage of toxic chemicals, cleaning supplies, and paper goods.

Strainer: A specially designed valve fitted with a removable strainer to trap dirt and contaminants.

Superheated Steam: Addition of heat to steam after evaporation accompanied by an increase in temperature.

Template: A pattern, usually to a set scale.

Therm: 100,000 BTUs.

Thermostat: An automatic device for regulating temperature on cooking equipment. Regular thermostats are usually accurate + or -25° F. Solid state thermostats are usually accurate + or - 5° F.

Thermostatic Trap: A mechanical steam trap that operates on the difference in temperature between steam and condensate.

Total Dissolved Solids: Chemicals which naturally occur in water, including lime, iron, calcium and magnesium that are precipitated out when water is boiled. These solids form deposits known as "scale."

Transportation: In the event food is prepared in one place and served in another, transportation activities include moving food and non-food products, can storage and cleaning, return of soiled ware for sanitizing or disposal, and the collection and disposal of plate waste.

UL: Underwriters Laboratories, a testing agency that issues a seal of approval.

USDA Meal Pattern: This term was changed by the USDA to school lunch meal patterns. It describes a group of foods that meets federal regulations for a nutritionally adequate lunch.

Utility Distribution System: Central distribution system for utilities such as water, gas, electric power, steam, etc., allowing connection of multiple pieces of equipment.

Vacuum: Lack of air, gas or matter below atmospheric pressure.

Value-Analysis Process: Study the total cost and total savings to the buyer on each purchase to determine if any specific cost is high for the value received.

VCP: Visual comfort probability.

Ventilator: A term commonly used to describe the exhaust hood over the cooking equipment. Ventilators are usually provided with fresh air supply grills to replace or "make-up" the air removed by the exhaust fan.

Vertical Cutter-Mixer: A machine that cuts and mixes at high speeds.

Wall Mount: Equipment supported by in-wall carrier instead of legs.

Warm-Up Load (Start-Up Load): Time of peak steam consumption as the vessel warms up to the operating temperature.

Water Hammer: The concussion of moving water against the walls of a pipe or vessel when introduced to pressurized steam.

Workstation: The area and equipment used to do similar work.

Appendix

Abbreviations

AC	Alternating current or air conditioning
ACF	American Culinary Federation
ACFSA	American Correctional Food Service Association
ADA	American Dietetic Association
ADA	Americans with Disabilities Act
AGA	American Gas Association
AIA	American Institute of Architects
amp	Ampere
ANSI	American National Standards Institute
ARD	Applied Research Division
ASID	American Society of Interior Designers
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
BTU	British thermal unit
C	Celsius
CAD	Computer assisted design
CFE	Certified Food Executive
CFESA	Commercial Food Equipment Service Association
CFSP	Certified Food Service Professional
CFH	Cubic feet per hour
CFM	Cubic feet per minute

CGA	Canadian Gas Association
cm	Centimeter
CNP	Child Nutrition Program
CQI	Continuous Quality Improvement
CSA	Canadian Standards Association
CSI	Construction Specification International
CW	Cold water
dB	Decibels
DC	Direct current
DMA	Dietary Managers Association
EFNRA	Educational Foundation of the National Restaurant Association
F	Fahrenheit
FADA	Fellow of the American Dietetic Association
FC	Footcandle
FCSI	Foodservice Consultants Society International
FD	Floor drain
FEDA	Foodservice Equipment Distributors Association
FEMA	Food Equipment Manufacturers Association
FMC	Federal Management Circular
FMI	Food Marketing Institute
FOB	Freight on Board
FTC	Federal Trade Commission
GAMA	Gas Appliance Manufacturers Association

GPM	Gallons per minute
HACCP	Hazard Analysis Critical Control Point
HP	Horsepower
HVAC	Heating, Ventilation, Air Conditioning
HW	Hot water
ID	Internal diameter
IES	Illuminating Engineering Society
IFB	Invitation for bid
IFSEA	International Food Service Executives Association
in.W.G.	Inches water gauge
IPS	Iron pipe size
ISO	International Standards Organization
KW	Kilowatt
KWH	Kilowatt hour
LCC	Life cycle costing
LD	Licensed Dietitian
LDN	Licensed Dietitian/Nutritionist
MAFSI	Manufacturers' Agents for the Foodservice Industry
NACUFS	National Association of College and University Food Services
NAFEM	North American Association of Food Equipment Manufacturers
NEMA	National Electrical Manufacturers Association
NFPA	National Fire Protection Association
NFSMI	National Food Service Management Institute

NIGP	National Institute of Governmental Purchasing
NRA	National Restaurant Association
NSF	National Sanitation Foundation
OD	Outside diameter
PID	Proportional integral derivative
POS	Point of sale
PRV	Pressure-reducing valves
PSI	Pounds per square inch
PSIG	Pounds per square inch gauge
QPL	Qualified Products List
RFP	Request for proposal
SFA	School Food Authority
SFM	Society for Foodservice Management
SMACNA	Sheet Metal and Air-conditioning Contractors National Association
SNP	School Nutrition Program
SP	Static pressure
UDS	Utility distribution system
UL	Underwriters Laboratory
USDA	United States Department of Agriculture
VCP	Visual comfort probability
VCM	Vertical-cutter mixer

Sample Warranty

Original Equipment Warranty
Effective Month/Day/Year

The ________________ Warrants its new Product(s) to be free from defects in material and workmanship for a period of one (1) year from the date of original installation, not to exceed eighteen (18) months from shipment from the factory, provided proof of installation date is supplied to ______________ prior to work being performed.

This Warranty shall be subject to the following conditions and limitations.

1. This Warranty is limited to Product(s) sold to the original commercial user.
2. The liability of ______________ under this Warranty is limited to, at ______________'s option, the replacement or repair of any part found by ______________ to be not as warranted herein, provided that written notice of defects shall have been supplied to __________ within thirty (30) days after its occurrence.
3. ________________ shall bear the normal labor charges incurred in such repair or replacement to the extent that such is performed within fifty (50) miles from an office of an authorized service agency of ________________, except that such obligation to bear labor charges shall not apply to products or parts installed outside the continental United States.
4. ______________ shall have no obligation as to any Product(s) which have been misapplied, (including installation for residential use), mishandled, abused, misused, subjected to harsh chemical action or poor water quality, modified by unauthorized service personnel, damaged by flood, fire or other acts of God or which have the serial numbers removed or altered.
5. Adjustments such as calibrations, leveling, tightening of fasteners or utility connections normally associated with original installation are the responsibility of dealer or installer and not that of _________.
6. These warranty periods rather than the one (1) year period herein provided for other parts shall apply for the Product(s) listed.

   ____

   ____

   ____

7. THIS STATES THE EXCLUSIVE REMEDY AGAINST ____________________ CORPORATION RELATING TO THE PRODUCT(S), WHETHER IN CONTRACT OR IN TORT OR UNDER ANY OTHER LEGAL THEORY, AND WHETHER ARISING OUT OF WARRANTIES, REPRESENTATIONS, INSTRUCTIONS, INSTALLATIONS OR DEFECTS FROM ANY CAUSE.
8. THIS WARRANTY AND THE LIABILITIES SET FORTH HEREIN ARE EXCLUSIVE AND IN LIEU OF ALL OF THEIR LIABILITIES AND WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO, IMPLIED WARRANTIES OR MERCHANTABILITY AND FITNESS FOR PARTICULAR PURPOSE AND CONSTITUTES THE ONLY WARRANTY OF ________________ CORPORATION WITH RESPECT TO THE PRODUCT(S).
9. ________________ CORPORATION SHALL NOT BE LIABLE, WHETHER IN CONTRACT OR IN TORT, OR UNDER ANY OTHER LEGAL THEORY, FOR LOSS OF USE, REVENUE OR PROFIT, OR FOR SUBSTITUTE USE OR PERFORMANCE, OR FOR INCIDENTAL, INDIRECT, OR SPECIAL OR CONSEQUENTIAL DAMAGES OR FOR ANY OTHER LOSS OF COST OF SIMILAR TYPE.

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Extended Warranty Coverage

Effective Month/Day/Year

Subject to the acceptance of the application for extended warranty coverage and the payment by the purchaser of the applicable charge therefore, the Corporation extends the warranty period of its original equipment warranty for a period of 12 months beyond the 12 month original equipment warranty, but not to exceed 24 months from date of installation.

The terms, conditions and limitations of the Extended Warranty shall be the same terms, conditions and limitations applicable to the original equipment warranty, except that throughout the period of extended coverage, after **the first 12 months of the original warranty, the Corporation shall bear the normal labor charges in effecting any replacement of defective parts, but only to the extent that performance is effected within 50 miles from an office of an authorized service agency of the Corporation.** In the event a distance of more than 50 miles shall be required to be traveled to perform such service, the person or firm requesting such service shall bear the normal charge of the personnel performing the service for time and travel beyond such 50 mile limit. This warranty shall not apply to equipment sold or used for residential use.

Company name
City

BEST COPY AVAILABLE

American Correctional Food Service Association (ACFSA)
304 West Liberty Street
Suite 201
Louisville, KY 40202
502-583-3783

American Culinary Federation, Inc. (ACF)
Ten San Bartola Drive
P. O. Box 3466
St. Augustine, FL 32085-3466
904-824-4468
www.acschefs.org

American Dietetic Association (ADA)
216 West Jackson Boulevard
Suite 800
Chicago, IL 60606
800-877-1600
www.eatright.org

American Gas Association (AGA)
1515 Wilson Boulevard
Arlington, VA 22209
703-841-8400
www.hea.com

American Institute of Architects (AIE)
1735 New York Avenue NW
Washington, DC 20006
202-626-7300
www.aiaonline.com

American National Standards Institute (ANSI)
11 West 42nd St. 13th Floor
New York, NY 10036
212-642-4900
www.ansi.org

American School Food Service Association (ASFSA)
1600 Duke Street
7th Floor
Alexandria, VA 22314
800-877-8822
www.asfsa.org

American Society for Testing and Materials (ASTM)
1916 Race Street
Philadelphia, PA 19103
610-832-9500
www.astm.org

American Society of Interior Designers (ASID)
608 Massachusetts Avenue NE
Washington, DC 20002
202-546-3480
www.asid.org

Commercial Food Equipment Service Association (CFESA)
9247 North Meridian Street Suite 216
Indianapolis, IN 46260
317-844-4700
www.cfesa.com

Council on Hotel, Restaurant and Institutional Education (CHRIE)
1200 17th Street NW
Washington, DC 20036
202-331-5990
www.chrie.org

Dietary Managers Association (DMA)
406 Surrey Woods Drive
St. Charles IL 60174
630-587-6336
www.dmaonline.org

Educational Foundation of the National Restaurant Association (EFNRA)
250 South Wacker Drive
Suite # 1400
Chicago, IL 60606
312-715-1010
www.restaurant.org

Food Equipment Manufacturers Association (FEMA)
401 North Michigan Avenue
Chicago, IL 60611
312-644-6610
www.nafem.org

Food Marketing Institute (FMI)
800 Connecticut Avenue NW
Suite 400
Washington, DC 20006
202-452-8444
www.fmi.org

Foodservice Consultants Society International (FCSI)
304 West Liberty Street
Suite 210
Louisville, KY 40202
fcsihq@aol.com

Foodservice Equipment Distributors Association (FEDA)
223 West Jackson Boulevard Suite 620
Chicago, IL 60606
312-427-9605
www.gamanet.org
e-mail feda@earthlink.net

Gas Appliance Manufacturers Association (GAMA)
1901 North Moore Street Suite 1100
Arlington, VA 22209
703-525-9565
www.gamanet.org

International Food Service Executive's Association (IFSEA)
1100 South State Road 7 Suite 103
Margate, FL 30368
305-977-0767

Marketing Agents for the Food Service Industry (MAFSI)
401 North Michigan Avenue
Chicago, IL 60611
770-455-7085

National Association of College and University Food Services (NACUFS)
c/o Clark E. DeHaven
Michigan State University
1405 South Harrison Road
Suite 305 Manly Miles Building
East Lansing, MI 48824
517-332-2494
www.nacufs.org/nacufs

North American Association of Food Equipment Manufacturers (NAFEM)
401 North Michigan Avenue
Chicago, IL 60611-4267
312-644-6610
www.nafem.org
e-mail nafem@hw-sba.com

National Fire Protection Association (NFPA)
1 Batterymarch Park
P. O. Box 9101
Quincy, MA 02269-9959
800-344-3555
www.nfpu.org

National Restaurant Association (NRA)
250 S. Wacker Drive Suite 1400
Chicago, IL 60606
800-765-2122
www.restaurant.org

National Sanitation Foundation (NSF)
3475 Plymouth Road
Ann Arbor, MI 48105
313-769-8010
www.nsf.org

Society for Foodservice Management (SFM)
304 West Liberty Street Suite 201
Louisville, KY 40202
502-583-3783
www.sfm-online.org

Underwriters Laboratories (UL)
333 Pfingsten Road
Northbrook, IL 60062
847-272-8800
www.ul.com

Utility Equipment Test Sites
American Gas Association
1515 Wilson Boulevard
Arlington, VA 22209
703-841-8400
www.hea.com

Utility Equipment Test Sites
Electric Cooking Council
115 First Street
Clayton, NC 27520
919-553-5800
www.foodservicecouncil.org

Guidelines for Equipment to Prepare Healthy Meals
and
Equipment Purchase Decision Forms

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The University of Mississippi

PREPARATION EQUIPMENT GUIDELINES

In previous NFSMI studies, school foodservice directors have indicated that over 65 percent of all schools are considered to use conventional food production (Maize and Conklin, 1995; Nettles, 1996). In other words, all food products are prepared and served at the same school site. Many types of foodservice equipment are needed in kitchens to prepare school meals. Development of guidelines focused on preparation equipment needed to produce meals in schools with conventional food production systems. For the purposes of this project, preparation equipment was defined as those equipment items used to prepare food items for cooking (mixer, slicer, and food processor), cook food products (convection oven, braising pan, kettle, steamer, and range), and hold food for service (heated cabinets and refrigerators).

METHOD

Size of School Kitchens

Three sizes of schools were determined based on an in-progress NFSMI research project which asked the number of meals prepared in conventional kitchens. The three categories were school kitchens that prepared 400 meals or less, 401-700 meals, and 701-1000 meals.

Development of Guidelines

The cycle menus developed in the first phase of the project were the basis for the development of preparation equipment guidelines. A systematic process was used to determine the type and capacity of preparation equipment needed in the three sizes of school kitchens. The process is outlined as follows:

- Number of portions per menu item were calculated for each school size
- Preparation equipment was identified to prepare each menu item.
- The number of pans or quantity of product needed to prepare each menu item was determined.
- The capacity of recommended preparation equipment was evaluated for each school size.

- The number and type of preparation equipment was recommended for each size of school kitchen.
- Preparation equipment was verified by calculating necessary capacity if very limited emergency menus were prepared.

Expert Panel

The proposed preparation equipment guidelines and the accompanying cycle menus were mailed to a nine member panel of experts. A one week example of the menus mailed to the expert panel is included in Appendix D. The panel consisted of six school foodservice directors, a foodservice consultant specializing in facility design, a manufacturers' representative for foodservice equipment, and a university professor whose expertise is quantity food production. There was representation from all areas of the country and sizes of school districts. A complete list of the expert panel members is in Appendix B. The panel members were asked to review the preparation equipment guidelines and the menus in order to verify whether the menus could be produced using the equipment listed for the three sizes of kitchens.

RESULTS

Preparation Equipment Guidelines

The expert panel members were instructed to review the equipment guidelines to determine if the menus could be prepared utilizing the equipment listed. They also were asked to carefully evaluate the number and capacity of equipment items since over-equipping kitchens is a concern as well as having enough foodservice equipment available. The panel made several changes to the preparation equipment guidelines and came to consensus on the final product. Convection oven capacity was increased for the 401-700 and the 701-1000 meal schools. A two burner range and food processor were added for all sizes of school kitchens. The original guidelines listed convection steamers for all sizes of school kitchens: Panel members preferred the term steamers because it was more generic and would include convection, low, and high pressure units. The number and capacity of braising pans were increased to one 40 gallon pan and one 23 or 30 gallon pan for the 401-700 schools and two 40 gallon pans for the 701-1000 schools. The expert panel reached consensus on the preparation equipment guidelines with the changes discussed. The guidelines were revised based on the comments of the panel (Figure 2).

Equipment Descriptions

Detailed descriptions were prepared for the equipment items included in the guidelines (Figure 3). Several sources were used in developing the equipment descriptions. Textbooks (Avery, 1985; Kazarian, 1989; Kotschevar & Terrell, 1985; Payne-Palacio, Harger, Shugart, & Theis, 1994; and Scriven & Stevens, 1982), USDA and State Department of Education publications (Auburn University Department of Architecture, 1994; *Equipment guide for on-site school kitchens*, 1977; Pannell, 1992; and Puma, 1983), and equipment manufacturer catalogs were utilized in addition to the researchers' prior experiences. Additional questions to consider when purchasing each equipment item were developed. Forms adapted from the equipment descriptions were developed that can be used by foodservice directors when making purchase decisions for these equipment items (Appendix E).

Other Foodservice Equipment

Preparation equipment was the focus of this study; however, this listing does not include all equipment necessary to operate a school kitchen. A list of suggested foodservice equipment for school kitchens was compiled (Appendix F). Quantities of suggested equipment were not delineated.

SUMMARY

Preparation equipment guidelines for three sizes of schools were developed. A panel of CNP and foodservice equipment experts reviewed the guidelines to verify whether the menus could be prepared using the equipment listed for the three sizes of kitchens. Preparation equipment guidelines were revised based on recommendations of the expert panel. These guidelines will be used by NFSMI in future research to determine whether school kitchens appear to be adequately equipped to offer menus consistent with the DGAs.

Figure 2. Preparation Equipment Guidelines for Conventional Kitchens

Preparation Equipment	Meals Prepared Per Day		
	<400	401-700	701-1000
Convection Ovens	(1) double	(2) double	(3) double
Tilting Braising Pans	(1) 23 or 30 gal.	(1) 23 or 30 gal. and (1) 40 gal.	(2) 40 gal.
Kettles	(1) 10 gal.	(1) 10 gal.	(1) 10 gal. and (1) 20 gal.
Steamers	(1) 2 compartment	(1) 2 compartment	(2) 2 compartment
Ranges	(1) 2-burner	(1) 2-burner	(1) 2-burner
Mixers	(1) 60 qt. with 30 qt. attachments	(1) 60 qt. with 30 qt. attachments	(1) 30 qt. and (1) 60 qt.
Slicers	(1) automatic	(1) automatic	(2) automatic
Food Processors	(1) table top	(1) table top	(1) table top
Heated Cabinets: Pass-thru or Reach-in	1 section	2 section	3 section
Refrigerators: Pass-thru or Reach-in	1 section	2 section	2 section

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CONVECTION OVENS

School ____________________ Breakfast ADP ________ Lunch ADP ________

Manufacturer ____________________ Model No. ____________________

Manufacturers Representative ____

Phone No. ____________________ Fax No. ____________________

Questions to Consider	Comments
How many meals are to be prepared?	
Do I need a single or stacked oven?	
What types of food products will be prepared in this oven?	
Does this oven have the necessary capacity to allow for increased production due to participation growth?	
Does this oven provide production flexibility?	
How often and for how many items will this oven be used?	
What power requirements are necessary? Do I have the necessary utilities available in this kitchen? If not, how much will it cost to obtain necessary utilities?	
Do I need a gas or an electric oven?	
How many KWs or BTUs does this oven use? Is it energy efficient?	
If I purchase a gas oven, are there any electrical connections required?	
What are the dimensions of this oven? Will it fit in the space available in this kitchen?	
What is the life expectancy for this oven?	

Is the oven NSF listed and AGA design certified or UL listed?	
What are the ventilation requirements for the oven?	
What optional features do I need?	
Do I want to purchase additional oven racks?	
Are legs included with this oven?	
What control panel options do I need?	
What is the temperature range of this oven?	
Is the oven easy to clean and operate?	
What preventive maintenance procedures are recommended?	
What do I need to know about this oven's heat transfer mechanism?	
How long does it take the oven to pre-heat?	
What are the differences in door construction?	
Who is the factory authorized service agent for this oven?	
How long does it take to receive replacement parts and where are they inventoried?	
What is the warranty and what is covered?	
Is an extended warranty available?	
What is the budget cost for this oven?	
What exterior finishes are available for the sides, legs, and back panel? What is the cost differential?	
Do I need a glass insert in the door or can it be solid?	

Do I need a training demonstration on the operating, cleaning, and preventative maintenance procedures for my employees? If so, is there any additional cost for the training?	
Does the manufacturer provide a videotape that I can use to train new employees?	

Name, phone number, and recommendation of school food service directors who have used this ________________________ convection oven.
(manufacturer/model)

Name	Phone Number	Recommendation

Recommendation for purchase:

TILTING BRAISING PAN

School ______________________ Breakfast ADP ______ Lunch ADP ______

Manufacturer ______________________ Model No. ______________________

Manufacturers Representative ______________________________________

Phone No. ______________________ Fax No. ______________________

Questions to Consider	Comments
How many meals are to be prepared?	
What capacity of braising pan do I need?	
What types of food products will be prepared in this braising pan?	
Does this braising pan have the necessary capacity to allow for increased production due to participation growth?	
Does this braising pan provide production flexibility?	
How often and for how many food items will this braising pan be used?	
What power requirements are necessary? Do I have the necessary utilities available in this kitchen? If not, how much will it cost to obtain necessary utilities?	
Do I need a gas or electric braising pan?	
How many KWs or BTUs does this braising pan use? Is it energy efficient?	
If I purchase a gas braising pan, are there any electrical requirements for controls?	
What are the dimensions of this braising pan? Will it fit in the space available in this kitchen?	
What is the life expectancy of this braising pan?	

Is the braising pan NSF listed and AGA design certified or UL listed?	
What are the ventilation requirements for this braising pan?	
What are the optional features and which ones do I need?	
What is the temperature range for this braising pan?	
What is the recommended pre-heat time for this braising pan?	
What will cause the pan bottom to dent or warp?	
Will the braising pan be located near an existing water line? If no, how difficult and expensive would it be to locate a water line near the braising pan?	
Do I need a spray rinse hose or filler faucet as an accessory?	
How is the cover constructed? Is it counterbalanced so that it will not slam?	
Where is the lifting handle located? Is it located where the employee can lift the cover without being in the path of steam?	
Are a cover vent and condensate drip shield provided in the pan cover?	
Is the braising pan easy to operate?	
Is the braising pan easy to clean?	
What preventive maintenance procedures are recommended?	
Who is the factory authorized service agent for this braising pan?	
How long does it take to receive replacement parts and where are they inventoried?	

What is the warranty and what is covered?	
Is an extended warranty available?	
What is the budget cost for this braising pan?	
How is the bottom constructed?	
What do I need to know about the braising pan's heat transfer mechanism?	
If I select a braising pan with an electric tilting mechanism, is there a manual override in case of power failure?	
Does the manual tilting mechanism have a self-locking worm and gear assembly?	
Do I need a training demonstration on the operating, cleaning, and preventive maintenance procedures for my employees? If so, is there any additional cost for the training?	
Does the manufacturer provide a videotape that I can use to train new employees?	

Name, phone number, and recommendation of school food service directors who have used this
______________________________ tilting braising pan.
(manufacturer/model)

Name	Phone Number	Recommendation

Recommendation for purchase:

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KETTLES

School ______________________ Breakfast ADP ______ Lunch ADP ______

Manufacturer ______________________ Model No. ____________________

Manufacturers Representative ____

Phone No. ____________________ Fax No. ______________________

Questions to Consider	**Comments**
How many meals are to be prepared?	
Do I want a stationary or tilting kettle? What is the price differential?	
What capacity of kettle do I need?	
What types of food products will be prepared in this kettle?	
Does this kettle have the necessary capacity to allow for increased production due to participation growth?	
Does the kettle allow for production flexibility?	
How often and for how many food items will this kettle be used?	
What is a tangent draw-off? Is it standard on this kettle? Do I need it on this kettle?	
Is a kettle cover included as standard equipment?	
What types of kettle covers are available?	
How are table top kettles mounted?	
Is there a floor drain adjacent to the installation site for this kettle?	

What power requirements are necessary? Do I have the necessary utilities available in this kitchen? It not, how much will it cost to obtain necessary utilities?	
Do I need a self-contained or direct steam model?	
Do I need a gas or electric self-contained kettle?	
If I purchase a gas kettle, are there any electrical requirements for the controls?	
How many KWs or BTUs does this kettle use? Is it energy efficient?	
What are the dimensions of this kettle? Will it fit in the space available in this kitchen?	
What is the life expectancy of this kettle?	
Is the kettle NSF listed and AGA design certified or UL listed?	
Is this kettle ASME shop inspected? What is the maximum working pressure that this kettle is registered for?	
What are the ventilation requirements for this kettle?	
What optional features do I need?	
Will the kettle be located near an existing water line? If no, how difficult and expensive would it be to locate a water line near the kettle?	
Do I need a spray rinse hose or filler faucet as an accessory for this kettle?	
What benefit would it be to have etched numbers on the inside of the kettle indicating the volume of liquid? How much does it cost?	

Does the kettle have a safety valve to release the jacket steam pressure? Is this automatic or does an employee manually release it? At what psi level, does this happen? How often does it occur?	
Is there a pressure gauge on the kettle?	
Does the kettle have a temperature control?	
Is the kettle easy to operate?	
Is the kettle easy to clean?	
What preventive maintenance procedures are recommended?	
Who is the factory authorized service agent for this kettle?	
How long does it take to receive replacement parts and where are they inventoried?	
What is the warranty and what is covered?	
Is an extended warranty available?	
What is the budget cost for this kettle?	
For what applications would I need a 316 stainless steel interior for this kettle?	
Do I need a training demonstration on the operating, cleaning, and preventive maintenance procedures for my employees? If so, is there any additional cost for the training?	
Does the manufacturer provide a videotape that I can use to train new employees?	
What do I need to know about operating and understanding the controls on this kettle?	
What safety features are designed into this kettle?	

Name, phone number, and recommendation of school food service directors who have used this ________________________________ kettle.
(manufacturer/model)

Name	Phone Number	Recommendation

Recommendation for purchase:

STEAMERS

School ______________________ Breakfast ADP ________ Lunch ADP ________

Manufacturer ______________________ Model No. ______________________

Manufacturers Representative ____

Phone No. ______________________ Fax No. ______________________

Questions to Consider	**Comments**
How many meals are to be prepared?	
What types of food products will be prepared in the steamer?	
Does this steamer have the necessary capacity to allow for increased production due to participation growth?	
Does this steamer allow for production flexibility?	
How often and for how many food items will this steamer be used?	
How many steamer compartments do I need?	
Do I need a direct steam model or a steamer with a self-contained boiler?	
Do I need a steamer with a gas- or electric-powered boiler?	
Do I want a pressureless, low pressure (5 psi), high pressure (15 psi), or pressure/pressureless steamer?	
How many steamtable (12x20x2 inch) pans does each compartment hold?	
What power requirements are necessary? Do I have the necessary utilities available in this kitchen? If not, how much will it cost to obtain necessary utilities?	

How many KWs or BTUs does this steamer use? Is it energy efficient?	
If I purchase a gas steamer, are there any electrical requirements for the controls?	
Do I need water (hot or cold) and/or a floor drain to install this steamer?	
Is the steamer NSF and AGA design certified or UL listed?	
Is this steamer ASME shop inspected?	
What are the dimensions of this steamer? Will it fit in the space available in this kitchen?	
What is the life expectancy of this steamer?	
Does the steamer have a safety valve to release steam pressure? Is this automatic or does an employee manually release it? At what psi level does this happen? How often does it occur?	
Is there a pressure gauge on the steamer?	
What are the ventilation requirements for this steamer?	
What optional features do I need?	
What do I need to know about the controls on this steamer?	
Does the steamer automatically turn off at the end of a timed steaming cycle or does it continue cooking until someone opens the door?	
How long does it take the steamer to pre-heat?	
Can the doors be re-hinged if the standard left hand hinging is not convenient in my kitchen?	
Are legs a standard feature?	

Can other equipment (kettles) be operated from the steamer boiler?	
Is the steamer easy to operate?	
Is the steamer easy to clean?	
What preventive maintenance procedures are recommended?	
Who is the factory authorized service agent for this steamer?	
How long does it take to receive replacement parts and where are they inventoried?	
What is the warranty and what is covered?	
Is an extended warranty available?	
What is the budget cost for this steamer?	
What type of maintenance (preventive and annual) is required for the boiler?	
Is a water-softening unit needed on this steamer?	
What type of safety features are built into the steamer?	
In the pressure steamers, are there safety features so that the doors cannot be opened until the steam pressure is reduced?	
Do I need a training demonstration on the operating, cleaning, and preventive maintenance procedures for my employees? If so, is there any additional cost for the training?	
Does the manufacturer provide a videotape that I can use to train new employees?	

Name, phone number, and recommendation of school food service directors who have used this
________________________________ steamer.
(manufacturer/model)

Name	Phone Number	Recommendation

Recommendation for purchase: ________________________________

RANGES

School ________________ Breakfast ADP ______ Lunch ADP ______

Manufacturer ________________ Model No. ________________

Manufacturers Representative ________________________________

Phone No. ________________ Fax No. ________________

Questions to Consider	Comments
How many meals are to be prepared?	
What types of food products will be prepared on this range?	
Does this range have the necessary capacity to allow for increased production due to participation growth?	
How often and for how many food products will this range be used?	
What size of range do I need?	
What power requirements are necessary? Do I have the necessary utilities available in this kitchen? If not, how much will it cost to obtain the necessary utilities?	
Do I need a gas or electric range?	
How many KWs or BTUs does this range use? Is it energy efficient?	
Are the gas connections located on the side or rear of this range?	
What are the dimensions of this range? Will it fit in the space available in this kitchen?	
Is the range NSF listed and AGA design certified or UL listed?	
What is the life expectancy of this range?	

What are the ventilation requirements for this range?	
What optional features do I need?	
What is the exterior finish for the front, sides and back of the range?	
What other types of exterior finish are available?	
What type of cook top is furnished with this range? Are other types available?	
Is this range furnished with a cabinet base? What are the interior dimensions?	
Are legs standard?	
Does this range have a removable drip/crumb tray?	
Do I need backguard or shelf on this range? What choices are available?	
Is the range easy to operate?	
Is the range easy to clean?	
What preventive maintenance procedures are recommended?	
Who is the authorized service agent for this range?	
How long does it take to receive replacement parts and where are they inventoried?	
What is the warranty and what is covered?	
Is an extended warranty available?	
What is the budget cost for this range?	

Do I need training demonstration on the operating, cleaning, and preventive maintenance procedures for my employees? If so, is there any additional cost for the training?	
Does the manufacturer provide a videotape that I can use to train new employees?	

Name, phone number, and recommendation of school food service directors who have used this
__________________________________ range.
(manufacturer/model)

Name	Phone Number	Recommendation

Recommendation for purchase:

MIXERS

School ______________________ Breakfast ADP ________ Lunch ADP ________

Manufacturer ______________________ Model No. ______________________

Manufacturers Representative ______________________________________

Phone No. ______________________ Fax No. ______________________

Questions to Consider	Comments
How many meals are to be prepared?	
What capacity of mixer do I need?	
What types of food products will be prepared in this mixer?	
How often and for how many food items will this mixer be used?	
What are the maximum production demands of the mixer?	
Does this mixer have the necessary capacity to allow for increased production due to participation growth?	
Would the purchase of an additional mixer bowl increase flexibility and be money well spent to increase productivity?	
What power requirements are necessary? Do I have the necessary utilities available in this kitchen? If not, how much will it cost to obtain necessary utilities?	
What are the dimensions of this mixer? Will it fit in the space available in this kitchen?	
What are the standard attachments for this mixer?	
What additional attachments are available?	
Is the mixer NSF/UL listed?	

Are mixer parts that have direct contact with the product easy to remove and clean?	
What type of switch does this mixer have?	
What do I need to know about operating and understanding the controls on this mixer?	
What safety features are designed into this mixer?	
Do I need more than one mixer in my operation?	
Is the mixer easy to operate?	
Is the mixer easy to clean?	
What preventive maintenance procedures are recommended?	
What optional features do I need?	
Who is the factory authorized service agent for this mixer?	
How long does it take to receive replacement parts and where are they inventoried?	
What is the warranty and what is covered?	
Is an extended warranty available?	
What is the budget cost for this mixer?	
What is the life expectancy of this mixer?	
Is this mixer located in a convenient area to accomplish job task?	
What is the best location for the mixer?	
Will the mixer be located near an existing water line? If no, how difficult and expensive would it be to locate a water line near the mixer?	
Do I need a water hose located near the mixer?	

What type of storage do I need for the attachments?	
If I purchase the slicer and grater attachments will I need to purchase a food processor?	
Do I need a training demonstration on the operating, cleaning and preventive maintenance procedures for my employees? If so, is there any additional cost for the training?	
Does the manufacturer provide a videotape that I can use to train new employees?	

Name, phone number, and recommendation of school food service directors who have used this
_________________________________ mixer.
(manufacturer/model)

Name	Phone Number	Recommendation

Recommendation for purchase:

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SLICERS

School ______________________ Breakfast ADP ______ Lunch ADP ______

Manufacturer ______________________ Model No. ______________________

Manufacturers Representative ______________________________________

Phone No. ______________________ Fax No. ______________________

Questions to Consider	Comments
How many meals are to be prepared?	
For what type of food products will this slicer be used?	
How often and for how many food items will this slicer be used?	
What type of portion control system does this slicer have? Will it cut off automatically when the desired number of portions are sliced?	
What power requirements are necessary? Do I have the necessary utilities available in this kitchen? If not, how much will it cost to obtain necessary utilities?	
What size horsepower does the motor have? Is it designed for heavy duty and frequent operation?	
What are the dimensions of this slicer? Will it fit in the available space or will I be better served mounting it on a cart?	
Is this slicer NSF and UL listed?	
Does this slicer have a knife guard as a safety feature?	
Does a knife sharpener come standard with this slicer?	
Is the carriage semi-automatic or automatic?	
What is the finish of the housing?	

What is the finish of the slicer blade?	
What is the diameter of the slicer blade?	
How many speeds does the slicer have?	
Does this slicer provide ease of disassemble and exposure of cleaning all parts?	
Does this slicer operate when the guard is not in place?	
What safety features are designed for this slicer?	
What optional features do I need?	
Is this slicer easy to clean and operate?	
What do I need to know about operating and understanding the controls on this slicer?	
What is the life expectancy of this slicer?	
Are all bearings permanently lubricated?	
What preventive maintenance procedures are recommended?	
Who is the factory authorized service agent for this slicer?	
How long does it take to receive replacement parts and where are they inventoried?	
What is the warranty and what is covered?	
Is an extended warranty available?	
What is the budget cost of this slicer?	
Do I need a training demonstration on the operating, cleaning and preventive maintenance procedures for my employees? If so, is there any additional cost for the training?	
Does the manufacturer provide a videotape that I can use to train new employees?	

Name, phone number, and recommendation of school food service directors who have used this ______________________________ slicer.
(manufacturer/model)

Name	Phone Number	Recommendation

Recommendation for purchase:

FOOD PROCESSORS

School ______________________ Breakfast ADP ______ Lunch ADP ______

Manufacturer ______________________ Model No. ______________________

Manufacturers Representative ____

Phone No. ______________________ Fax No. ______________________

Questions to Consider	Comments
How many meals are to be prepared?	
How often will this food processor be used?	
What types of food products will this food processor prepare?	
What versatile features does this machine have?	
How can this processor enhance my production needs?	
Does this food processor have the necessary capacity to allow for increased production due to participation growth?	
What power requirements are necessary? Do I have the necessary utilities available in this kitchen? If not, how much will it cost to obtain necessary utilities?	
What is the horsepower (HP) of the motor? Will I be able to perform heavy duty processing with this machine?	
Is this food processor NSF and UL listed?	
What are the dimensions of this food processor? Will it fit in the available space or will I be better served mounting it on a cart?	
Does this processor allow for production flexibility?	

What special features do I need for this food processor?	
What safety features are designed for this food processor?	
What optional features do I need?	
What attachments are provided as standard?	
What additional attachments are available?	
Does this food processor have a "fail safe" feature that prevents the operation of the machine when the cover is opened?	
Is the blade constructed from stainless steel?	
What is the cutting tool construction? What is the durability of the material?	
How many speeds does this food processor have?	
What is the exterior finish?	
Is this food processor easy to operate?	
Is this food processor easy to clean?	
Will a demonstration be provided for determining attachment needs?	
What is the warranty and what is covered?	
Does this food processor provide easy dismantling with a minimum of removable parts?	
What preventive maintenance procedures are recommended?	
Who is the factory authorized service agent for this food processor?	
How long does it take to receive replacement parts and where are they inventoried?	
What is the budget cost of this slicer?	

What is the life expectancy of this food processor?	
If I already have the slicer and grater attachments for my mixer do I really need to purchase this food processor?	
Do I need a training demonstration on the operating, cleaning and preventive maintenance procedures for my employees? If so, is there any additional cost for the training?	
Does the manufacturer provide a videotape that I can use to train new employees?	

Name, phone number, and recommendation of school food service directors who have used this
__________________________________ food processor.
(manufacturer/model)

Name	Phone Number	Recommendation

Recommendation for purchase:

____

____

____

____

____

HEATED CABINETS

School ______________________ Breakfast ADP ______ Lunch ADP ______

Manufacturer ______________________ Model No. ______________________

Manufacturers Representative ______________________________________

Phone No. ______________________ Fax No. ______________________

Questions to Consider	**Comments**
How many meals are to be prepared and served?	
What types of food products will be held in the heated cabinets?	
How often and for how many food items will this heated cabinet be used?	
Does this heated cabinet have the necessary capacity to allow for increased demand due to participation growth?	
What type of food pans will the menu items be in? Will the food products be individually plated?	
How many heated cabinet sections do I need?	
Do I need a reach-in, pass-thru, roll-in, or roll-thru heated cabinet?	
Do I need a stationary or mobile heated cabinet?	
Do I need an insulated or non-insulated heated cabinet?	
What power requirements are necessary?	
Is this unit supplied with a cord and plug or is it permanently wired?	
How many amps does this unit use?	

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What are the dimensions of this heated cabinet? Will it fit in the space available in this kitchen?	
What is the life expectancy of this heated cabinet?	
Is the heated cabinet NSF and UL listed?	
What optional features do I need?	
What is the temperature range of this cabinet?	
Are legs standard?	
Are pan slides standard?	
What type of pans slides do I need? How many pan slides do I need?	
Are pan slides permanently fixed to the cabinet wall or are they adjustable?	
What type of door handles does this heated cabinet have?	
What type of doors are standard?	
Are half doors available?	
Are glass doors available?	
How sturdy and dependable are the brakes on the mobile heated cabinet?	
What type of thermometer is provided?	
How many interior lights are provided?	
Can the doors be re-hinged if the standard hinging is not convenient in my kitchen?	
Is the heated cabinet easy to use?	
Is the heated cabinet easy to clean?	
What preventive maintenance procedures are recommended?	
Who is the factory authorized service agent for this heated cabinet?	

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How long does it take to receive replacement parts and where are they inventoried?	
What is the warranty and what is covered?	
Is an extended warranty available?	
What is the budget cost for this heated cabinet?	
What do I need to know about the controls on this heated cabinet? Where are they located?	
What is the exterior finish?	
What is the interior finish?	
What other types of exterior finish are available?	
What type of heating system is used?	
What type and thickness of insulation is used?	
Do I need a training demonstration on the operating, cleaning, and preventive maintenance procedures for my employees? If so, is there any additional cost for the training?	
Does the manufacturer provide a videotape that I can use to train new employees?	

Name, phone number, and recommendation of school food service directors who have used this ______________________________ heated cabinet.
(manufacturer/model)

Name	Phone Number	Recommendation

Recommendation for purchase:
____
____
____
____
____
____
____
____
____
____
____
____

REFRIGERATORS

School ______________________ Breakfast ADP ______ Lunch ADP ______

Manufacturer ______________________ Model No. ______________________

Manufacturers Representative ______________________________________

Phone No. ______________________ Fax No. ______________________

Questions to Consider	**Comments**
How many meals are to be prepared and served?	
What types of food products will be stored in the refrigerator?	
What type of food pans will the menu items be in? Will the food products be individually plated?	
How often and for how many food items will this refrigerator be used?	
Does this refrigerator have the necessary capacity to allow for increased demand due to participation growth?	
How many refrigerator sections do I need?	
Do I need a reach-in, pass-thru, roll-in, or roll-thru refrigerator?	
Do I need a stationary or mobile refrigerator?	
What power requirements are necessary?	
Is the unit supplied with a cord and plug or is it permanently wired?	
What size compressor is in this refrigerator?	
How many amps does this unit use?	
What are the dimensions of the refrigerator? Will it fit in the space available in this kitchen?	

What is the life expectancy of this refrigerator?	
Is the refrigerator NSF and UL listed?	
What optional features do I need?	
What is the temperature range of this unit?	
Are legs standard?	
What type of pan slides do I need?	
How many pan slides do I need?	
Are pan slides permanently fixed to the refrigerator wall or are they adjustable?	
What type of door handles does this unit have?	
What type of doors are standard?	
Are half doors available?	
Are glass doors available?	
How sturdy and dependable are the brakes on the mobile unit?	
What type of thermometer is provided?	
How many interior lights are provided?	
Can the doors be re-hung if the standard hinge opening is not convenient in my kitchen?	
Is the refrigerator easy to use?	
Is the refrigerator easy to clean?	
What preventive maintenance procedures are recommended?	
Who is the factory authorized service agent for this refrigerator?	
How long does it take to receive replacement parts and where are they inventoried?	
What is the warranty and what is covered?	

What is the compressor warranty?	
Is an extended warranty available?	
What is the budget cost for this refrigerator?	
What do I need to know about the controls on this refrigerator? Where are they located?	
What is the exterior finish?	
What is the interior finish?	
What other types of exterior finish are available?	
What type of refrigeration system is used?	
What type and thickness of insulation is provided?	
Where are the evaporator coils located?	
Are heater wires provided around each door frame?	
Do I need a training demonstration on the operating, cleaning, and preventive maintenance procedures for my employees? If so, is there any additional cost for the training?	
Does the manufacturer provide a training video that I can use to train new employees?	

Name, phone number, and recommendation of school food service directors who have used this
______________________________________ refrigerator.
(manufacturer/model)

Name	Phone Number	Recommendation

Recommendation for purchase:

____

____

____

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____

____

I. RESPONSIBILITY FOR DESIGN, CONSTRUCTION, OPERATIONS

Project Name	Phone	Fax	E-mail
Address			
School District			
Project Coordinators			
Address			
Address			
Architect			
Contact			
Address			
Food Service Consultant			
Address			

Program Dates:

Design Completion: Construction Start:

Bidding: Construction Completion:

Foodservice Facility Budget: (attach)

Approval procedure: (Note here the steps in the approval procedure, dates, contact names, and numbers)

II. CUSTOMER POTENTIAL

Grade Levels ____________ Student Ages ____________

School Capacity ____________ Projected Enrollment ____________

Location of School: Rural ________ Urban ________ Suburban ________

Meal Service Offered: (Check all that apply)

Breakfast
Lunch
Snack Programs
Meals on Wheels

Extended School Care
Community Meal Service
Senior Citizens Program
Other ____________

Anticipated Maximum	Daily Customer Count		
	Breakfast	Lunch	Other
Students			
Teachers/Staff			
Others			

III. MEAL SERVICE INFORMATION

Number of Breakfast Periods ____________ Length of Session ____________

Number of Lunch Periods ____________ Length of Session ____________

Block Class Scheduling Yes No
Continuous Service Yes No
Open Campus Yes No
Student Canteen Yes No
Other Yes No

Hours of Service:
Breakfast ____________
Lunch ____________
Other ____________

Maximum Seating at One Time ____________

IV. TYPE OF KITCHEN

- ☐ On-site production and serving
- ☐ Finishing: finish production and serving
- ☐ Central: production only
  - ☐ Full menu items
  - ☐ Specialized menu items (list) ______________________
  - ☐ Bakery items
- ☐ On-site production for outside serving and satellite locations

	Number of meals served		
Satellite School/Location	Breakfast	Lunch	Other

- ☐ Satellite receiving and serving
  - ☐ Bulk hot
  - ☐ Bulk chilled for heating and serving
  - ☐ Pre-plated
    - ☐ Hot
    - ☐ Chilled for reheating and serving

V. TYPE OF PRODUCTION

- ☐ Cook and serve
- ☐ Chilled food system
  - ☐ Blast chill
  - ☐ Blast freeze
  - ☐ Water bath chill
  - ☐ Combination system
- ☐ Rethermalization system
  - ☐ Conventional equipment
  - ☐ Specialized equipment
- ☐ Other

VI. MENUS

☐ Choice ☐ Limited choice

Self-service bars (like salad or taco) ______________________________

Branded menus (list) ______________________________

____

Menu specialization (list) ______________________________

____

VII. TYPES OF FOOD SERVICE

Serving methods

☐ Traditional straight serving line
☐ Scatter or scramble
☐ Self-service, specialty bars
☐ Food court
☐ Kiosks and/or multiple decentralized areas
☐ Mobile units/carts
☐ Marché concepts
☐ Window-style service
☐ Vending machines in foodservice area
☐ Other (specify) ______________________________

VIII. DINING AREA

Inside facility Outside facility Both

Seating capacity

Common area ______________________

Dining room ______________________

Facility/Staff dining room ______________________

IX. INFORMATION FOR STORAGE

Decisions on the following will influence type of storage and equipment required.

Begin with 100% of each product category and break down the percentage as it applies.

Meat/Meat Alternate Items - indicate % of use

List	Fresh	Frozen to cooler	Frozen to cook
Chicken products			
Fish products			
Ground beef			
Ground pork			
Ground turkey			
Hamburgers			
Turkeys			
Pizza			
Sandwich meats			
Convenience items			
Other			

IX. INFORMATION FOR STORAGE (cont.)

Vegetable Items - indicate % of use

List	Fresh	Frozen	Dehydrated	Canned
Green vegetables				
Onions				
Potatoes				
Root vegetables				
Other				

Fruit Items - indicate % of use

List	Fresh	Frozen	Dried	Canned
Oranges				
Apples				
Bananas				
Juices				

Bakery Items - indicate products to be used and method of preparation

List	Basic (raw) ingredients	Mixes	Frozen	Ready-to-serve
Bread (sliced, loaf)				
Rolls				
Muffins, biscuits				
Pastry, cookies				
Buns				
Other				

IX. INFORMATION FOR STORAGE (cont.)

Liquid/partial liquid items – indicate % of use

List	Raw to ready	Bases	Canned	Frozen	Chilled bags
Chili					
Sauces					
Soups					
Stews					
Other					

X. STORAGE INFORMATION

Length of storage periods is directly related to the purchasing procedures of food and supply products. The agreed upon delivery schedules from the food and supply product vendors may determine the length of storage periods. The length of storage may also be a result of available space coordinated with the product vendors.

Type of Storage	**Length of Storage Periods**
Refrigerated	Maximum Period
Meat and Poultry (34° F)	days
Fruit and Vegetables (38° F)	days
Dairy (34° F)	days
Freezer (0° F)	days

Dry Storage Requirements:

Check all disposables to be put in dry storage area:

Straws Napkins Hot cups Cold cups Bowls Eating utensils
Plates Trays Pan liners Sandwich wrap/bags
Aluminum foil pans Other ______________________________

Type of Storage	**Length of Storage Periods**
Dry Storage	Maximum Period
Staples 60° F	days
Paper goods - routinely used products	days
Emergency disposables	days
Cleaning supplies	days
Other Foodservice Items	days

X. STORAGE INFORMATION (cont.)

Special Requirements for Storage

Type of Refrigeration Equipment

Refrigerator:

Reach-in	single, double	Walk-in
Reach-through	single, double	Walk-through

Freezer:

Reach-in	Walk-in
Ice cream cabinet	Milk shake machine
Ice machine	Soft-serve machine

XI. SERVING AREA CONSIDERATIONS

Will cashier computer terminals be used? Yes No

Computers linked to a network? Yes No

Location of server: ____________________

Methods of payment: Cash Tickets Computer cards Other

Will special merchandising be required in serving area? Yes No

Menu boards Signage Other ____________

Type of condiments provided: ____________________

Location of condiments: Serving counters Condiment counters

Serving area Dining room Other ____________

How will condiments be dispensed?

Pumps Portion packs Other ____________

Beverages to be offered and how dispensed: ____________

Extra purchase items to be offered and how dispensed: ____________

____

Tableware:

Compartment trays, size ________	Flat trays, size ________
Dishes, permanent ware	Dishes, disposable
Eating utensils, permanent ware	Eating utensils, disposable

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XII. DISH/TRAY WASHING

Will students self-serve trays/dishes/flatware? ☐ Yes ☐ No

If yes: ☐ Full self-scrapping ☐ Partial self-scrapping

Sanitizing System:

Trays/Dishes/Flatware: ☐ Chemicals ☐ 180° F + hot water

Pots/Pans: ☐ Chemicals ☐ 180° F + hot water

Kitchen cleaning equipment: ☐ Hand ☐ Steam ☐ Hydro

Kitchen cleaning equipment located: ☐ Foodservice area ☐ Elsewhere

XIII. WASTE DISPOSAL

What size trash receptacles? ____________ How many? ____________

Preferred location for can wash and storage? ____________

Waste disposal systems to be used: ☐ Garbage disposal ☐ Compactor ☐ Pulper ☐ Cans/dumpster

Frequency of trash pick-up? ____________

Is trash storage space needed? ☐ Yes ☐ No

Recycling provisions: ____________

XIV. EMPLOYEE FACILITIES

Employee toilets and lockers:

☐ Hand washing facilities/lavatories

☐ Men's and women's facilities Number of lockers each ____________

☐ Unisex facility Number of lockers ____________

Number of offices required? ____________ Person(s) per office? ____________

Office furniture and equipment requirements: ____________

____

Educational facilities: ____________

Will a clothes washer and dryer be needed? ☐ Yes ☐ No

Will a time clock be required? ☐ Yes ☐ No Location: ____________

XV. TECHNICAL INFORMATION

Available utilities:

- ☐ Gas
  - ☐ Propane
  - ☐ Natural
- ☐ Electricity
- ☐ Steam
- ☐ Water
- ☐ Sewer

Power specifications:

Electricity - voltage/phase

- ☐ 110-120/1
- ☐ 208/1
- ☐ 220-240/1
- ☐ 208/3
- ☐ 220-240/3
- ☐ 440-480/3

Steam: psi ________________ flow ________________

XVI. EQUIPMENT SELECTION MATRIX

Using your menu as the guide, select and check equipment to prepare menu items. Many menu items may be prepared by using several different types of cooking equipment. Select equipment based on the best quality cooking results, utility energy efficiency, and human energy efficiency. When completed, analyze the total number of checks per type of equipment item. The results should justify and direct the equipment selection.

Menu Items	Equipment Items											

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Menu Items	Equipment Items											

XVII. OTHER CONSIDERATIONS

Will any existing equipment be used? Yes No

If so, local department of health may require:

- present location of item
- name of manufacturer
- model number
- all dimensions of item (length, width, height)
- utility requirements for connection
- will school install or contractor install
- any special requirements not listed above

Students with special needs that require unique preparation or serving equipment

Special requests for overall design

Facility designed for expanded capacity

Should facility be designed for future capacity

Description of innovations or experimental ideas which might be incorporated into the program

Method of procurement of equipment

Desired finishes for equipment and spaces

Equipment needed for each function

Receiving Checklist

	YES	NO	COMMENTS
Consideration given to where and how the equipment is to be received			
Is there a receiving dock?			
Does the delivery truck need a gate lift?			
Are dollies, hand trucks required?			
What are the size measurement of doorways (height and width)? Will the equipment need to be moved temporarily?			
Have all utility requirements been provided for equipment? ■ Electrical- voltage, cycle, phase, amp, load ■ Gas- type, BTU requirements, pressure, and flow ■ Water- pressure requirements ■ Steam- flow and pressure requirements ■ Drains- size and location			
Have exhaust requirements been met?			
Does water need to be filtered and/or treated?			
Have permits been secured?			
Has the installer been prepared and notified?			

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Checklist to Prepare For Equipment Installation

Be prepared to investigate:	YES	NO	COMMENTS
Is there a receiving dock?			
Does the delivery truck need a gate lift?			
Are dollies, hand trucks required?			
What is the size and weight of the crate?			
What are the measurement of doorways—height and width? Will the new equipment fit through the doorway?			
What is the width of the aisle space in the kitchen? Will tables and other pieces of equipment need to be moved temporarily?			
Have all utility requirements been provided?			
Have exhaust requirements been met?			
Does water need to be filtered?			
Are all permits secured?			
Has the installer been notified?			

Utility requirements include:
- Electrical- voltage, cycle, phase, amp., load
- Gas- type, BTU, pressure, flow
- Water- pressure requirements
- Steam- flow and pressure
- Drains- size and location

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Procurement Plan

The ________________________ Board of Education will purchase food, supplies, equipment, and services for use in the Child Nutrition Program (CNP) using the procedures outlined below:

A. **Formal bid procedures** are utilized if the total amount of purchase for like items or in the aggregate is more than $10,000.

1. Advertisements are run in a newspaper of general circulation.
2. Specifications and bid documents are mailed to all potential bidders.
3. Bids are publicly opened and then held under advisement.
4. The CNP Director will tabulate bids and select the bid with the lowest price that meets specifications.
5. The recommendation is submitted to the superintendent or school board (based on local procedures).

B. **Small purchase procedures are** used if the total amount of like items or in the aggregate is less than $10,000.

1. Specifications are used.
2. Quotes from at least two to three vendors are solicited.
3. Quotes are recorded.
4. Quotes are evaluated for the lowest price of products that meet specifications.
5. The purchase is awarded

C. **Competitive negotiation** is used for services or products such as customer designed equipment when a detailed reasonable specification is difficult.

1. Criteria for the product or service are developed.
2. A Request for Proposal (RFP) is developed.
3. There are potential vendors available to provide the service or product.
4. The RFP is publicized and sent to potential vendors.
5. There are trained staff able to evaluate RFPs.
6. There are trained staff to negotiate price and terms.

D. **Emergency purchase** is used only to continue service.

1. A log of emergency purchases is maintained and contains: specification/item name, invoice copy with dollar amount, vendor name, and date. Authorized prior approval from the school food authority is necessary for an emergency purchase.
2. ________________________ Does a second-person review of emergency purchase.
   NAME OF PERSON

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E. **Noncompetitive negotiations** are used only as a last resort when competition is inadequate or to purchase an item that is available from one source.

1. Little or no competition resulted from the formal bid process.
2. A log of all sole source purchases is maintained.
3. The proposed purchase is evaluated by second-party review.

F. **Documentation**: At a minimum, the following records will be maintained for a period of three years plus the current year unless there is a pending audit. Check your local and state regulations for record retention.

1. All bid documents including a log of any telephone conversations.
2. Price comparison of bid awards.
3. Comparison of price quotes with effective dates.
4. Logs of emergency and noncompetitive purchases.
5. Log of approved substitution.
6. Invoices.

Attachments are considered to be part of the procurement plan:

1. Code of Conduct
2. School Code of Conduct
3. Chart of Procedures
4. Solicitation/Invitation to Bid
5. Request for Quotations

This procurement plan, consistent with local policy, is adopted by the ______________
[illegible]

at the regularly scheduled meeting on this the ____ of __________ in the year of ________

(Superintendent Signature) ______________________________

Annually Reviewed: ____________
DATE

Attachments: #1 - Code of Conduct
#2 - School Code of Conduct
#3 - Chart of Procedures
#4 - Solicitation/Invitation to Bid
#5 - Request for Quotations

Resource Note:
Code of Federal Regulations 7 CFR Parts 210-250 and Parts 3016 and 3017
Office of Management and Budget Circulars (OMB) A-102, Attachment 0-Procurement Standards
OMB A-87 Cost Principles of State, Local, and Indian Tribal Governments

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Solicitation/Invitation to Bid

It is the purpose and intent of this invitation to secure bids on the items specified on the sheets attached. Your written bid must be submitted in a sealed envelope to ______________________
BOARD OF EDUCATION

______________________________________, ____________ ______________________
NAME OF PERSON TO RECEIVE BIDS ADDRESS

______________________ reserves the right to reject any and all bids, in whole or in part
BOARD OF EDUCATION

and/or to accept the bids that in its judgement will be in the best interest of the program. No bid will be allowed to be withdrawn for any reason after __________________.
DATE

Prices bid shall be firm (or escalating) for the period between __________ and __________ and
DATE DATE

shall include all charges for packing and transporting to the individual centers at the addresses on the attached sheet. Prices will not include Federal Excise Tax or State Sales Tax.

In the event that the successful bidder(s) are unable to perform as required, the successful bidder(s) shall be responsible for the securing of items or services from an alternate vendor and pay that vendor any additional costs involved in supplying the items.

The successful bidder or bidders must:

1. Comply with Executive Order 11246, entitled "Equal Employment Opportunity," as amended by Executive Order 11375 and as supplemented in the Department of Labor regulations. Complete the certification regarding debarment, suspension.

2. Meet regulations relating to energy efficiency which are contained in the State Energy Conservation Plan issued in compliance with the Energy and Conservation Act (PL 94-165).

3. Allow access by duly authorized representatives of the School Food Authority, State Agency, United School Food Authority States Department of Agriculture or Comptroller General to any books, documents, papers and records which are directly pertinent to this contract.

4. Maintain all required records for three years after final payment and after all other pending matters are closed. (Some states require a longer period of retention.)

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In the event that the successful bidder(s) are unable to furnish the brand which was indicated in their bid, delivery may not be made until the ________________ has been contacted and an alternate approved.
(TITLE OF PERSONNEL)

All items shall be subject to inspection after arrival at the destination. If any items are found to be defective or otherwise not in conformity with the specification, such items will be rejected. It will be the responsibility of the vendor to defray any cost involved in the delivery and return of rejected articles.

The successful bidder(s) shall be paid in payments or in full, upon submission of an itemized invoice with the prices stipulated herein for the items delivered and accepted. Any discounts are to be noted on the bid sheets and reflected on the invoices. Invoices should be sent to ________, ____________ at ______________________________.
(NAME) (ADDRESS)

If any potential bidder is in doubt as to the true meaning of this Invitation to Bid, he may submit a request for an interpretation to ______________________________
(NAME) (ADDRESS) (PHONE NUMBER)

Any interpretation will be made by addendum and a copy mailed to each person receiving an invitation to bid. The Board of Education will not be responsible for any other explanation or interpretation of such documents which anyone presumes to make on behalf of the Board of Education.

Vendors shall not submit a bid for the contract if a conflict of interest, real or apparent, would be involved. Conflicts of interest arise when any of the following has a financial or other interest in the firm:

a. An employee, officer, or agent of ______________________
(NAME OF ORGANIZATION)

b. Any member of the immediate family of the above named persons

c. The partner of any of the above named persons

d. Any officer, employee or agent of the vendor prepared specifications, work orders, bid or contract provisions for this acquisition

Attachment: Certification of Debarment/Suspension (Federal Form AD 1048)

SUBMITTED BY ______________________ TITLE ________________
COMPANY NAME ______________________ DATE ________________
ADDRESS ____
TELEPHONE NUMBER ______________________________________

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Request for Quotations

It is the purpose of ____________________ to secure quotes for the items specified
(BOARD OF EDUCATION)

on the attached sheets. Quotes will be taken on ____________________ of each

____________ ____________________ at ____________________
(DAY OF WEEK) (WEEKLY, BIWEEKLY, MONTHLY, ETC.) (TIME OF DAY)

______________________________.
(ADDRESS)

The Board of Education reserves the right to reject any and all quotes in whole, or in part, and/or to accept the quotations that in its judgement will be in the best interest of the School Nutrition program.

Prices quoted shall include charges for transporting any or all items in varying quantities to

______________________________.
(EACH SCHOOL, CENTRAL WAREHOUSE, ETC.)

Prices quoted will not include Federal Excise Tax or State Sales Tax. Any discounts to be given must be specifically stated on the quotation sheet.

Response to the quotations will be given orally with a written confirmation upon request.

Any proposed alternates to the specifications listed must be approved by ____________ (TITLE OF PERSON) five days prior to the quotation.
An example of the alternate may be required to establish quality.

All items will be inspected upon arrival. If any articles are found defective or otherwise not in conformity with the specifications, the sponsor shall have the right to reject such items. It will be the responsibility of the vendor to defray any cost involved in the delivery and return of rejected items.

Invoices should be sent to ______________________________
(EACH SCHOOL, CENTRAL WAREHOUSE, ETC.)

All quotations are firm for the period of ____________________.
(DATES)

SUBMITTED BY ______________________________
COMPANY NAME ______________________________
ADDRESS ______________________________
TELEPHONE NUMBER ______________________________

SIGNATURE ______________________________
TITLE ______________________________
DATE ______________________________

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CONTRACT SECTION I - INVITATION TO BID

TO:

Date Issued: ________________

ATTENTION: BID DEPARTMENT

Bid Number ________________

TELEPHONE: ____

Items: Food Service Equipment as indicated in Section IV

Type of Contract: BOTTOM LINE FOR ONE TIME DELIVERY

Delivery Date:

Bid Opening: DATE: Friday, June 20, 1997
TIME: 2:00 p.m.

Mail Bids to: Hand deliver all sections or mail to:

____
____
____

NOTE: ENVELOPE SHOULD BE SEALED AND PLAINLY MARKED IN ACCORDANCE WITH GENERAL INSTRUCTIONS.

Contacts: If you have any questions concerning this invitation for bid, please phone ________________________________
____

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I, we, propose to furnish and deliver the items as listed according to your specifications and quantities at the indicated prices.

This Bid consists of INVITATION, GENERAL AND SPECIAL INSTRUCTIONS, AND SPECIFICATIONS. We understand that a company officer's signature is required, and unless this has been done, our "bid" will be considered incomplete and rejected therefore.

I, we, the undersigned, do hereby understand and accept the instructions and conditions under which this quotation is being submitted.

Addenda: The undersigned hereby acknowledges receipt of Addenda No. _____ and the incorporation of same in the proposal.

COMPANY NAME ____

ADDRESS ____

CITY/STATE/ZIP ____

TELEPHONE NUMBER ____

FAX NUMBER ____

SIGNATURE ____

TITLE ____

CERTIFICATE OF RESPONSIBILITY NO. ______________________

DATE ____

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II GENERAL INSTRUCTIONS

Sealed, written bids will be received by the ______________________ School District at the time and place specified on the Invitation to Bid. Neither dating of bid form nor placing in mail by this date will meet requirements. Bid must be received on or before date and time stated. The ____________________ School District reserves the right to reject any and all bids and to waive any and all formalities. While it is the intention of the ______________________ School District to purchase all items listed, the right is reserved to omit any item necessary to bring the total cost within budget provisions.

1. Correction of Mistakes: All entries must be in ink or typewritten. No erasures or corrective fluid permitted. Mistakes may be crossed out and correction inserted adjacent. Corrections must be initialed in ink by person signing bid.

2. Signature on Invitation Required: "Invitation to Bid" shall be signed with the firm or corporate name and by an officer.

3. Return Instructions: Bidders must use the Bid form without alterations. Bids must be submitted sealed in an envelope, with the address of the School District on the outside of the envelope, company name and bid number, and bid opening date as they appear on the invitation. Pages on which there are no items to complete may be detached, and only those pages which contain entries or signature need be returned. Unsealed bids will be deemed unresponsive and rejected.

4. Pricing: Unit price will prevail in case of conflict between unit and total price. Unit price shall include total for equipment plus all accessories as per specifications.

5. Terms: All items listed are to be charged to the _____________________________ (School name and complete address). Invoice date to be determined by the date of delivery unless otherwise agreed.

6. Payment Schedule: Three options: Board of Trustees should indicate by an "X" the option chosen.

( ) A. The School District will issue separate purchase orders for each item and will make payment within 10 working days following the next regularly scheduled Board meeting after delivery.

( ) B. The School District will issue separate purchase orders by building location and will make payment within 10 working days following the next regularly scheduled Board meeting after installation.

( ) C. The School District will issue one purchase order for the entire amount of this bid and will make payment withing 10 working days following the next regularly scheduled Board meeting after all work covered by purchase order is completed.

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7. Do Not Combine Items: Bid on each item separately. Prices must be stated in units specified herein. Each item must be considered separately and not in combination with other items.

8. Delivery Prepaid: It is understood that the bidder agrees to deliver prepaid to location as indicated in specification. All costs for delivery, drayage or freight for the packing or unpacking of said articles are to be borne by the bidder.

9. Complying with Specifications: All materials furnished must be subject to inspection and approval by the School District after delivery. The right is reserved to reject and return at the risk and expense of the dealer such portion of any shipment which may be defective or fail to comply with specifications without invalidating the remainder of the order. If rejected, it will be held for disposition at the expense and risk of the dealer. Dealers will be required to replace that defective portion of an order according to the specifications without additional cost to the ____________________ Public School.

10. Guarantee: Each bidder, by presenting a bid under these specifications, binds himself to make positive that all goods are fully up to the standards set by the specifications. Should it be discovered within a reasonable period of time from date of contract that such goods or services are not up to standard, ____________________ Public Schools shall have the right to have such goods or services replaced by others conforming to the standard requirements and the entire expense shall be borne by the bidder.

11. Correctness of Bids: Bids shall be verified before submission, as quotations cannot be withdrawn after public opening. No bid can be corrected after being opened. The ____________ Public Schools will not be responsible for errors or omissions on bids.

12. Delivery Schedule: The successful bidder shall deliver the articles named in the specifications by delivery date as specified on the Invitation to Bid. Upon failure of the successful bidder to deliver all of the items ordered within the time set or allowed, the successful bidder will be considered in default.

13. Default and Delays: In case of default of the successful bidder, the ____________ Public Schools reserves the right to terminate the purchase order or contract and to purchase similar supplies, services, furniture, furnishing or equipment on the open market. The bidder will be charged with any cost occasioned by the ____________ Public Schools whether said cost is same as originally accepted or in excess of the original contract.

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14. Bidder Qualifications: Before any contract can be awarded, a bidder must be deemed qualified, in the judgment of school district officials, to perform as required, herein. A bid will be rejected if a bidder fails to meet any one of the following qualifications or supply any of the required documentation.

A. Product Line:

The bidder must demonstrate that it can provide all of the items on the bid list within the time frames specified in the Invitation to Bid.

Required Documentation:

1. The bidder must submit written documentation, such as inventory records, identifying the items that are to be delivered within (insert days for example: seven (7) working days) of bid award that are currently in inventory. Bidder must submit a signed statement certifying these items are not subject to prior sale.
2. For all other items, bidder must submit written documentation from the manufacturer, on manufacturer letterhead, that items will be delivered to bidder within (insert days; for example: twenty (20) working days) of bidder's order.

B. Financial Ability To Perform:

The bidder must demonstrate to school district officials that he has the financial ability to supply items to the school district as required.

Required Documentation:

1. Bidder must supply letters from all manufacturers/suppliers that will be used by bidder to service the contract that the bidder is in good standing with the manufacturer/supplier. Letters must be on the manufacturer/supplier's letterhead and signed by an authorized representative of the manufacturer/supplier and dated after the date of publication of this invitation to bid.

C. Reliability:

The bidder must demonstrate a record of successful prior service. For bidder's with less than one year of experience, the bidder must demonstrate the ability to perform.

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Required Documentation:

1. All bidders must complete the Attachment ___ to the bid by listing all contracts exceeding (enter dollar amount for example: $25,000 in aggregate during the past three (3) years) and that the bidder is in default or has not defaulted on the contract. Bidder will not meet the standard if bidder has been determined to be in default on any public entity contract exceeding $25,000 in aggregate within the last three (3) years by a court of competent jurisdiction or recognized administrative appeal or hearings board, whether or not monetary damages were awarded. Bidder will not meet the standard if the bidder has defaulted on more than one nonpublic contract valued at more than $15,000 during the past year.
2. Bidders with more than one year of experience must supply letters of satisfactory performance for contracts completed within the last twelve (12) months that are equal to or greater in value than the bidder's price for this invitation from 50 percent of the customers of such contracts, but not more than five (5) public entity customers and not more than five (5), commercial customers. These letters must be on the public entity's or commercial customer's letterhead and signed by the contracting official or designated representative.
3. Bidders with less than one year of experience must supply letters of satisfactory performance from all public entity's customers and letters from fifty (50) percent, but no more than five (5), commercial customers. These letters must be on the public entity's or commercial customer's letterhead and signed by the contracting official or designated representative.

D. Accounting Practices:

Responsible bidder shall possess the experience and ability to perform the necessary services for a complete and workmanlike installation of food service equipment.

Required Documentation:

1. Identification of the personnel by name and title who will coordinate with other trades the proper equipment installation, including years of experience, technical and manufacturer training courses and certification received within the last three years.
2. Copies of warranty service authorization on manufacturer letterhead or via manufacturer certificates. Warranty authorizations/certificates must be currently valid. Authorizations or certificates which do not identify bidder's current eligibility are not acceptable.

Bidder must include dimensioned mechanical/electrical rough-in drawing.
Bidder must provide on-site demonstration of equipment operation, service and maintenance within (insert days) after completion of installation.

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15. Standard Contract Conditions

A. This contract shall be governed in all respects as to validity, construction, capacity, performance, or otherwise, by the laws of the State.

B. Contractors providing services under this Invitation to Bid herein assure the school district that they are conforming to the provisions of the Civil Rights Act of 1964, as amended.

C. State Sales and Use Tax Certificate of Exemption form will be issued upon request. Sales tax shall be included in prices where applicable.

D. Deliveries against this contract must be free of excise or transportation taxes, except when a tax is part of a price and school districts are not exempt from such levies. Excise tax exemption registration number may be used when required.

E. Contractor shall comply with applicable Federal, State, and local laws and regulations pertaining to wages, hours and conditions of employment. In connection with contractor's performance of work under this Agreement, contractor agrees not to discriminate against any employee(s) or applicant(s) for employment because of age, race, religious creed, sex, national origin or handicap.

F. Modifications, additions or changes to the terms and conditions of the Invitation to Bid may be a cause for rejection of a bid. Bidders are requested to submit all bids on the school district's official forms. Bids submitted on company forms may be rejected.

G. The contractor agrees to retain all books, records and other documents relative to this agreement for three (3) years after final payment. The district, its authorized agents, and/or State/Federal representatives shall have full access to and the right to examine any of said materials during said period.

H. By his signature on the face of this document, a bidder certified that his bid is made without prior understanding, agreement, or connection with any corporation, firm or person submitting a bid for the same materials, supplies or equipment, and is in all respects fair and without collusion or fraud. The bidder certified that he understands that collusive bidding is a violation of Federal law and can result in fines, prison sentences, civil damage awards. He further agrees to abide by all conditions of this bid and certifies that he is authorized to sign this bid for the bidder.

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1. Prohibition against conflicts of interest, gratuities and kickbacks.

> "Any employee or any official of the school district, elective or appointive, who shall take, receive or offer to take or receive, either directly or indirectly, any rebate, percentage of contract, money or other things of value, as an inducement or intended inducement, in the procurement of business, or the giving of business, for, or to, or from, any person, partnership, firm or corporation, offering, bidding for, or in open market seeking to make sales to the school district shall be deemed guilty of a felony and upon conviction such person or persons shall be subject to punishment or a fine in accord with State and/or Federal laws."

3. Fiscal Funding: If the purchase orders for the items covered by this proposal have not been issued by June 30 of the current fiscal year, it should be understood that purchases in the next fiscal year are conditional on receipt of Federal and/or State funds. In the event of the discontinuance or a decrease in Federal and/or State funds, the Board of Trustees reserves the right to decrease the quantities and/or delete items.

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III. SPECIAL INSTRUCTIONS

1. Start-Up - The bidder shall indicate in Section IV the name of company, agent, address and phone number of the party responsible for checking operation of equipment after final installation. If installation by party other than bidder, the Public Schools shall be responsible for notifying specified agent that equipment is ready for start-up inspection. All start-up inspections shall be completed within 10 working days of notification. Failure to provide this information will be considered reason for rejection of bid. A written report of results of start-up check shall be provided to the school district by agent listed in Section IV.

2. Demonstration - All equipment with moveable parts shall be demonstrated to school district employees responsible for operation and care of equipment. Bidder shall indicate in Section IV the name of company, agent, address and phone number of party responsible for demonstration. If the agent is not an employee of the bidder, a letter shall be attached indicating willingness to provide demonstration. The Public School District shall be responsible for notifying agent that equipment has been installed and start-up check has been completed. Demonstration shall be provided within 10 working days of notification. Demonstration shall be conducted at a time agreeable to the school district at the site of actual equipment installation. Failure to provide this information will be considered reason for rejection of bid.

3. Dealer Warranty - In addition to the manufacturers' warranty the successful bidder shall guarantee for a period of one (1) year all items and equipment furnished under this bid. The warranty shall begin on the date the owner has accepted the start-up report or the owner has notified the successful bidder that start-up is complete. The conditions of the warranty shall be as follows:

A. Non-Refrigerated Equipment

1. Start-up and calibration
2. All parts that are integral with the equipment when purchased and all loose parts furnished with the equipment
3. All labor and mileage
4. If at any time during the warranty period, the equipment fails to function due to problems not related to the equipment, the dealer will charge the owner for the service call
5. Any parts or function of the equipment that fails to perform due to misuse or abuse voids the warranty and the dealer will charge the owner, owner must perform routine cleaning procedures

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B. Refrigerated Equipment

1. All of the above, plus: five (5) year compressor warranty.

4. Factory Authorized Service Agents - The bidder shall indicate in Section IV the name, address and phone number of a factory authorized service agency for each item specified. The factory authorized service agency shall be located within 250 miles of installation site. Providing this information is in addition to the dealer service required in No. 3 above. A written statement from the manufacturer shall be attached to the bid indicating that this agent is authorized to service its equipment. Factory authorized service agents shall abide by the code of ethics of the Commercial Food Equipment Service Association (CFESA). Failure to provide this information will be considered reason for rejection of bid.

5. Codes - All equipment must be constructed and installed in accordance with the National Sanitation Foundation Code. All equipment must be listed and approved, where applicable, for UL, AGA and ASME requirements and all other requirements as specified by local building codes, plumbing codes, fire codes and all other state and local codes. All food service equipment must bear the applicable seals.

6. Manuals - The Board of Trustees shall be provided three (3) copies of use/care manuals and illustrated parts list for all equipment with moveable parts. These manuals shall be provided within 10 days of installation.

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7. Removal of Existing Equipment - Two options - ______________ Public Schools should indicate by an "X" the option chosen.

( ) A. Successful bidder will be responsible for disconnecting existing equipment as follows: ____

In addition, successful bidder shall disconnect and reconnect any existing equipment which must be temporarily moved for installation of new equipment.

( ) B. Board of Trustees will be responsible for disconnection and removal of existing equipment prior to scheduled installation date for new equipment.

8. Assembly - All equipment is to be uncrated, assembled, set in place and made ready for final connections. All debris accumulated with the delivery of equipment shall be removed. Foodservice equipment is to be cleaned and turned over in first class condition.

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9. Installation - Two options - ______________ Public Schools should indicate by an "X" the option chosen.

( ) A. Bidder shall be responsible for all electrical, gas and plumbing connections. All installations shall be completed by an appropriate professional. ________________ Public Schools will provide appropriate utilities within six feet of installation location.

( ) B. _________________ Public Schools will be responsible for all electrical, gas and plumbing connections.

10. Pre-Approved Brand - If bidder comes to bid an "or equal" brand, proof of equality must be submitted 10 days prior to bid opening. Any and all variances in construction, design, performance and accessories from the item specified must be submitted in writing to contact person listed in "Invitation to Bid." This information shall be submitted in addition to manufacturers cut sheet. Failure to obtain prior approval will result in rejection of bid. Addenda shall be issued by __________________ Public Schools to all pre-qualified bidders stating specification number, item name and alternate brand and model number approved. This addenda shall be issued five days prior to bid opening.

11. Specifications - Written description in the specification will prevail in case of conflict between written description and model number.

12. Alternate Bids - Bidders shall submit only one (1) bid per item specified.

13. On-site Visits and Field Measurements - Three options - ____________ Public Schools should indicate by an "X" the option chosen.

( ) A. When an on-site visit is indicated in specifications, bidder shall complete on-site visit prior to date of bid opening. Bidder shall attach to bid a signed statement from the contract person listed in "Invitation to Bid" affirming that on-site visit was complete.

( ) B. The successful bidder shall be responsible for taking all field dimensions which affect the equipment and installation thereof. At the time of taking field measurements, the successful bidder shall report to the contact person named in invitation any conditions which will prevent him from the execution of his work as outlined in specifications and installation instructions.

( ) C. Public Schools assures the successful bidder that equipment can be delivered to installation site with no changes to existing entrances. Public Schools assumes full responsibility for any cost associated with removal and replacement of framing on entrances in order to deliver and set in place equipment, and the cost of additional mileage and labor as a result of failure of the Board of Trustees to meet the requirements of this paragraph.

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14. Custom Fabricated Equipment - Equipment shall be fabricated by a foodservice equipment fabricator who has the plan, personnel and engineering facilities to properly design, detail and manufacture high quality equipment. The bidder shall, by his signature on Invitation to Bid, indicate the equipment is to be fabricated by bidder personnel. If fabrication is to be subcontracted, bidder shall attach to bid submittal letter giving name and address of fabrication subcontractor.

Successful bidder shall submit shop drawings for custom fabricated equipment. Drawings shall be at a minimum ¼" scale and include a plan view and front, rear, and side elevations. All drawing shall be fully dimensioned and all parts labeled as to materials and methods of construction. Shop drawings shall be approved by contact person listed on Invitation to Bid prior to start of fabrication.

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PART 1 GENERAL

1.01 Related Documents

A. Drawings, bidding requirements, contract forms and condition of the contract, including the Instructions to Bidders, General Conditions, Supplementary Conditions, and Division-01 Specification Sections, apply to work of this section.

1.02 Scope of Work

A. Provide all work as specified in this section and indicated on Contract Drawings.

B. All referenced manufacturer's requirements and specifications, and nationally recognized and accepted standards, and specifications shall be the latest addition unless specified otherwise and shall be used as they are applicable for products and craftsmanship incorporated in the Contract Drawings and this section only.

1.03 Quality Assurance

A. Quality shall mean the meticulous attention to the detail of installation and workmanship necessary for the assemblage of products in the highest grade of excellence by skilled craftsmen of the trade.

B. Equipment manufactured and fabricated shall be new, of the highest quality, perfect, and without flaws. To the extent available and practicable, standard stock models have been specified. This contractor shall provide the latest model at time of delivery.

C. All equipment shall be provided with accessories (gauges, safety valves, thermostats, etc.) as required by and installed in full compliance with the current rules and regulations of the local and state health authorities in which the project is located.

D. Utility connections have been set for the equipment indicated and specified. If manufacturers require additional or different utility services and connections, these additional or different utility service and connections shall be provided, paid for, and completely coordinated under this section.

1.04 Codes

A. All codes, regulations, interpretations, and rulings of enforcing agencies which govern any part of the work of this section shall be considered a part of the governing regulations. No extra charge will be paid for the providing of items or furnishing work which is required by the regulations even though such may not be specifically called for on the drawings or in the specifications. Should a conflict occur between these codes and equipment specified, the code takes precedence. Notification of the code variance shall be made to the architect.

1.05 Standards

A. Unless otherwise called for, comply with the following standards as applicable to the manufacturer, fabrication, and installation of the work in this section.

1. NSF Standards: Comply with National Sanitation Foundation (NSF) standards and criteria, and provide NSF "Seal of Approval" on each manufactured item and on items of custom fabricated work.
2. UL Standards: For electrical components and assemblies, provide either UL labeled products or, where no labeling service is available, "recognized markings" to indicate listing in the UL "recognized component index".
3. UL Standards: For exhaust system and fire control.
4. AGA Approval: For all gas fired equipment.
5. NFPA Standards: Comply with NFPA No. 96 for exhaust systems.
6. ASME Code: Comply with ASME Boiler Code requirements for steam generating equipment, kettles, and steamers.
7. National Electrical Code: Comply with N.E.C. for electrical wiring and devices included with food service equipment.
8. State and local codes and requirements.

1.06 Related Work by Separate Contractors

A. Concrete platforms, bases, depressions, and openings in the walls.
B. All waste water, vents, gas, ducts, heating, ventilation, and air conditioning, steam, and condensate return lines, also the final connection to the foodservice equipment herein contained.
C. Conduit, wiring, breakers, and connections to the foodservice equipment herein contained.

1.07 Submittals

A. Within thirty (30) days after award of contract (before equipment is purchased) this contractor shall submit five (5) brochures of approval.

1. One (1) piece of manufacturer's literature on each item contained in these specifications.
2. One (1) separate type written sheet on each item containing model numbers, specifications, accessory numbers, sizes, mechanical, and electrical connections. All the items specified herein and arranged in numerical order.
4. Provide the name and phone number of the authorized service agent for each peice of equipment.

B. In addition to brochures, this contractor SHALL also submit manufacturer's detailed shop drawings for all built-to specification equipment, (i.e., exhaust hoods, walk-ins, dishwashers, etc.).

1. Submittal shall be a reverse reading paper sepia and two (2) sets of bluelines or five (5) sets of bluelines.
2. Submittal shall show details of sections at minimum 1½" = 1'-0", and plan and elevation at minimum ¼" = 1'=0".
3. Submittal shall include complete specification of all hardware, materials, and quality of workmanship.

C. This contractor SHALL NOT redraw and submit equipment layout, mechanical, electrical, duct, depression, fabrication, or any other engineering drawings already detailed in these contract drawings in order to submit any revisions to fabrication details. Fabrication drawings shall be submitted as follows:

1. One (1) reverse reading sepia and two (2) sets of bluelines or five (5) sets of bluelines.
2. Each submittal using this format shall have title block, sheet numbers, logos, and dates replaced with equipment manufacturer's title block information.
3. Revisions shall be made to these sepias with complete specifications attached for all substitutions.

1.08 Nameplates

A. Nameplates shall be provided on each "buy-out" product identifying the product manufacturer, model number, serial number, and other identifying information for use in warranties and securing replacement parts.

B. The nameplates may be on the back or bottom of small and portable equipment but on heavy, permanently installed equipment, the nameplate shall be visible without searching. Electrical equipment shall have plates giving electrical characteristics.

C. Nameplates shall fit snugly against the surface of the equipment, shall be no larger than necessary, shall be free of rough edges, and shall be attached in such a manner that it will not interfere with the sanitation of the equipment.

PART 2 - PRODUCTS

2.01 Mechanical Appurtenances Under This Section of the Specifications

A. Except as noted, otherwise specified, all faucets and hose bibbs shall be as manufacturer by the T & S Brass & Bronze Company, Fisher Faucets, or Chicago Faucets. Deck type faucets shall be model no. B-201 with lock down feature, back splash type faucets shall be model no. B-231-CC. Both faucets shall have a 12" swing spout and a model B-199 aerator. NOTE: above model numbers refer to T & S, others must match.

B. Where standard faucets are specified in this section, said faucets shall conform to paragraph A above unless otherwise noted.

C. Provide rotary handle, quick opening wastes with 4" long tailpieces and connected rear overflows on each sink compartment unless otherwise specified.

D. All equipment operation valves shall be installed at the job in a accessible location for the operator of the equipment.

E. Provide vacuum breakers with foodservice equipment where required by governing regulations, including locations where water outlets are equipped for hose attachment.

F. A shut-off valve shall be provided and installed by general contractor in the water supply connection to sinks, ice makers, and other pieces of equipment. Where two (2) or more units are connected to a single line and running to a common waste drain or floor drain, an accessible cleanout plug at the inlet of the line and/or at each 90° turn shall be provided by the general contractor.

G. Where exposed or semi-exposed, provide bright chrome-plated brass or polished stainless steel hardware. Provide copper or brass where not exposed.

H. Pressure vessels shall be inspected by the State Boiler Inspector, and shall receive his approval before use. All vessels shall have a pressure relief valve, a pressure reducing valve, temperature, and pressure gauge and shall have the temperature maintained by an automatic thermostat. All steam lines shall be properly insulated to meet or exceed ASHRAE 90-80 requirements and any local code requirements.

I. Verify type, BTU/Hr, specific gravity and pressure of gas to be used for all gas appliances.

J. Provide as part of this section of these specifications, gas pressure regulator valves and disconnect hoses for all gas operated appliances.

2.02 Electrical Appurtenances Under This Section of the Specifications

A. The contractor shall verify that the voltage on the job corresponds with the equipment drawings and specifications before ordering any electrical equipment. All equipment shall be grounded.

B. Motors 1/3 h.p. and less shall be 120/60/1, a.c.

C. Except where noted otherwise, motors ½ h.p. and over shall be wired for 208/60/3, a.c. motors shall have thrust type bearings so motors can operate in vertical position, shall be totally enclosed, 55° rise above 40° ambient, continuous duty. Motors shall have low torque starting current characteristics, with NEMA frames.

D. Plugs for 120/60/1 shall be Hubbell, Arrowhart, or P&S safety grip type.

E. Plugs for 208/60/1 or 3 or above, shall match the receptacles specified under Division 16.

F. Receptacles for equipment specified shall be Hubbell, Arrowhart, or P&S grounding type, three pole receptacles to receive plugs called for previously. Units shall be mounted in type "FS" box enclosures with stainless steel face plates and boxes where receptacles are exposed.

G. Thermostats not otherwise specified under individual items shall be as manufactured by Fulton, Powers, or Robert Shaw and shall be provided at all bain maries, coffee urns, dishwashers, hot food tables, counters, and heated cabinets.

H. Controls, thermostats, starters, switches, and contractors furnished under this section of the specifications shall conform to the following:

1. Units which are an integral part of equipment shall be factory installed. Units which are to be separately mounted other than on equipment structure shall be installed on the job site under Division 16 of these specifications.
2. Starters for 120/60/1 shall be manual tumbler type, having thermal overload protection, with interchangeable heater elements.
3. Magnetic starters for 208/60/3 shall be size 1, line voltage type with three thermal overload relays for normal operation by automatic control or 120/60/1 phase push button station. Enclosure shall have overload reset and 120 volt control circuit.
4. All motors for remote control shall have magnetic starters regardless of horsepower or rating.
5. Cords and plugs for portable items shall be three wire or four wire type "S" as specified, all rubber cord with one leg grounded to the framework of the equipment. All wiring in or between foodservice equipment shall be run in Sealtite conduit.

I. Lights which are integral parts of equipment such as incandescent lights under protector guards, lights under hoods, etc., shall be provided with bulbs.

2.03 Ventilation Appurtenances Under This Section of the Specifications

A. Coordinate with Division 1500. The hoods and ventilation systems and work by the fabricators of these exhaust systems shall comply with:

1. Recommendations of the National Fire Protection Association in NFPA No. 96 "Vapor Removal From Cooking Equipment, 1984".
2. National Sanitation Foundation's recommendations Standard No. 2 for foodservice equipment.
3. Underwriter's Laboratories Standard for safety, file 192 "Grease Extractors for Exhaust Ducts UL 710, and file number E34091." Report on component industrial control equipment auxiliary devices.
4. State and local codes and requirements.

2.04 Fabrication Standards

A. Stainless steel:

1. Unless specified otherwise, stainless steel shall be USS (U.S. Standard) AISI type 302/304, 18-8 chromium/nickel with a maximum of .08 content of carbon; hardest workable temper, no. 4 directional polish. Stainless steel sheet shall be stretched, leveled, and cold rolled.
2. Stainless steel tubing and pipe shall be true round unless specified otherwise, seamless, or welded to appear seamless. Welded tubing shall be properly heat treated and quenched, to prevent carbide precipitation.

B. Galvanized steel:

1. Sheet: ASTM A 526, except ASTM A 527 for extensive forming: ASTM A 525, G90 zinc coating, chemical treatment.
2. Pipe: ASTM A 53 or ASTM A 120, welded or seamless.
3. Structural members: ASTM A 124 hot-dipped zinc coating, applied after fabrication.
4. Where painted finish is indicated, provide mill phosphatized treatment in lieu of chemical treatment.

C. Steel:

1. Sheet: ASTM A 569 hot rolled carbon steel.
2. Structural members: hot rolled or cold formed carbon steel.

D. Aluminum:

1. Sheeting, plating, and extrusions, as indicated, ASTM B 209/B 221; alloy, temper and finish as determined by manufacturer/fabricator, except 0.40 mil natural anodized finish on exposed work unless another finish is indicated or specified.

E. Sound Deadening:

1. Underside of metal work surfaces, including tables, drainboards, countertops, sink, and similar units shall have a coating of sound deadening material comprising of a heavy bodied resinous coating filled with granulated cork or other resilient product and compounded for permanent, non-flaking adhesion to metal in a thick coating. The coating shall end 3" from edges which are open for cleaning. Finish with aluminum lacquer.

F. Jointing Products:

1. Gasket: solid or hollow, but not cellular neoprene or polyvinyl chloride; light gray, minimum of 4 Shore A hardness, self adhesive or prepared for either adhesive application or mechanical anchorage.
2. Sealant: One part or two part, polyurethane or silicone based, liquid elastomeric sealant, non-solvent release type, mildew resistant, Shore A hardness or 30, except 45 if subject to traffic.

G. Paint and Coatings:

1. Provide the types of painting and coating materials which, after drying or curing, are suitable for use in conjunction with food service, and which are durable, non-toxic, non-dusting, non-flaking, heat resistant, mildew resistant, and comply with governing regulations for food service.
2. Pre-treatment: SSPC-PT2 or PT2, or Federal Specifications TT-C-490 as is best suited for the metal being treated and the paint or coating to be applied.
3. Primer: Shall be the best suited for the metal to be primed and the paint or coating to be applied and shall be suitable for baking.

H. Field joints shall be located for practical construction and consistent with sizes convenient for shipping and accessibility into the building. All field joints in top shall be carefully sheared with sharp edges removed so they can be tightly butted and drawn together to leave a hairline joint. They shall be constructed as follows:

1. Two (2) channels shall be welded to the underside of the top of the same material and gauge as called for in top specifications. Channels are 1½" x 1" x 1½". One shall set back from the edge; the other shall extend beyond the edge to form a flat surface for aligning the meeting piece.
2. The underside of the top that overlaps the one (1) channel shall be provided with stud bolts on 2½" centers, and the top surface of the channel shall be perforated to receive same.
3. The abutting vertical members of the channels shall be perforated and provided with 5/16" bolts on 4" centers. When the bolts in the channel and the studs are drawn tightly, both vertical and horizontal tension shall be provided to hold the top secure and level.
4. Joints shall be welded, ground smooth and polished.
5. A die-formed end capping of the same material as the table top shall be applied to the exterior of the turned up edge on dish tables, sink drainboards, or other fixtures with raised rims to conceal the ends of the channels.

I. Where plumbing is required to pass through an enclosed base of a table or counter, such piping shall be enclosed in a suitable pipe chase with easily removable access panels. These access panels shall be slightly recessed and removable without tools.

J. Where plumbing and supply piping pass through shelves on open base tables, the pipe chases and shelves shall be neatly punched, die-stamped to include knockouts elevated around opening. Flange up for knockouts shall be ½" minimum.

K. Provide all scribe and filler strips, etc. for items recessed or furred. Provide and install escutcheons or panels to completely seal around all openings where pipe, ductwork, or conduit penetrate walls or bottoms of equipment units.

L. Pipe legs supporting equipment, tops, and sinks shall be constructed of 1⅝" O.D., 16 gauge seamless stainless steel tubing. Furnish each leg with a stainless steel fully enclosed round gusset and an adjustable stainless steel bullet type foot (adjustment being internal). Furnish crossrails between all pipe legs. Cross rails shall be 1⅝" O.D. of same material as pipe legs and welded to the legs.

M. Tops of work surfaces shall be of 14 gauge stainless steel with a 2" turndown on all exposed sides. Where the top is adjacent to a wall or high adjoining equipment, it shall have a turnup on a ¾" radius of 8¾", a 1¼" turn back on 45 degree angle, a 1" horizontal turn back and a ½" turndown toward the floor. Close all ends of backsplashes. Tops shall be constructed as follows:

1. Fabricate metal work surfaces by forming and welding to provide seamless construction, using welding rods, matching sheet metal, grinding and polishing.
2. In forming the sheeting, remove burrs from sheared edges of metal work, ease the corners, and smooth to eliminate cutting hazard. Bend sheets of metal at not less than the minimum radius required to avoid grain separation in the metal. Maintain flat, smooth surfaces without damage to finish.
3. Welds shall be strong, ductile, with excess metal ground off and finished smooth, and polished to match adjacent surface. Welds shall be free of imperfections such as pits, runs, splatters, cracks, etc., and shall have the same color as adjacent sheet surfaces.
4. Field joints may be provided in the top only where necessary and these shall be constructed as hereinbefore specified.

N. Reinforce work surfaces 30" o.c. maximum, both ways with galvanized or stainless steel concealed structural members. Reinforce edges which are not self-reinforced by formed edges. Reinforce metal at locations of hardware, anchorages, cutouts, and accessory attachments, wherever metal is less than 14 gauge or requires mortised application. Conceal reinforcements to the greatest extent possible.

O. Where fasteners are permitted, provide Phillips head, flat, or oval head machine screws. Cap threads with acorn nuts unless fully concealed in unaccessible construction; and provide nuts and lockwashers unless metal for tapping is at least 12 gauge. Match fastener head finish with finish of metal fastened.

P. Where components of fabricated metal work are indicated to be galvanized, and involved welding or machining of metal heavier than 16 gauge, complete the fabrication and provide hot-dip galvanizing of each component after fabrication. Comply with ASTM A123.

Q. Sink Construction:

1. Sinks shall be of 14 gauge stainless steel, all welded construction, with a formed continuous top edge. Drainboards shall be built as an integral part of the sink and have the same top edge and backsplash. Repolish all backsplashes and top to have grain running in the same direction.
2. Where adjacent to a wall, the rear of the sink shall be provided with a backsplash identical to that specified under Paragraph M above.
3. Except where otherwise noted, each sink shall be fitted with a 2" rotary type waste with a chrome plated strainer and a connected rear overflow.
4. Where sinks are set side by side, the cross partitions shall be double wall with air space between them. All interior corners, including the partitions, shall be coved on a minimum of ⅛" radius. Multiple sinks shall be provided with continuous seamless front.
5. Faucets shall be furnished for each sink compartment unless specified differently at multiple sink compartments.

R. Drawer Standards:

1. All drawers shall have a removable drawer pan stamped in one (1) piece with all corners coved. The drawer pans shall be a minimum of 20" x 20" x 5" deep and be constructed of 20 gauge stainless steel.
2. All drawers shall be enclosed on both sides, rear, and bottom with 18 gauge stainless steel, and welded to form one (1) piece vermin proof unit.
3. Provide a double pan, 16 gauge stainless steel drawer face with integral pull for each drawer.
4. When drawers are in a tier of three (3), the bottom drawer shall occupy the balance of the available height with the upper drawers both being 5" deep.
5. All drawers shall be self closing and operate on sanitary antifriction type steel runners with nylon ball bearing rollers.
6. Provide all drawers with padlock hasps as shown on drawings. Padlocks shall be furnished by owner.

S. Cabinet Standards:

1. Fixtures with enclosed cabinet type bodies shall be constructed of 18 gauge stainless steel. Interior walls shall be of 18 gauge stainless steel. Vertical style channels shall be welded. Access panels shall be lift out type, giving access to chase ways and shall be of minimum 18 gauge stainless steel.
2. All shelving inside equipment shall be of minimum 18 gauge stainless steel. In specifying number of shelves, the bottom shall be considered as one. All bottom shelves extend forward, turndown flush with the front facing of the cabinet. All interior shelves shall have a 1½" turnup at rear and ends with edges beveled and made to hug the interior of the cabinet body. All welding shall be ground smooth and polished.
3. All sliding doors shall be full height, formed pan shaped with flush facing front and back, braced internally to prevent twisting and shall have sound proofing material internally applied. Exterior faces of door shall be of 18 gauge stainless steel and interior faces of door shall be of 20 gauge stainless steel. Doors to operate on nylon or stainless steel ball bearing rollers running in concealed overhead tracks and having concealed stainless steel guide pins in the sill at the bottom. Doors shall lift out and have a drop at the end of the closing run to hold them closed.
4. Hinged doors shall be double pan construction. Exterior shall be of 16 gauge stainless steel and interior of 18 gauge stainless steel. Doors shall be flush mounted without overlap. One side of the door shall have a ¼" diameter pin at the top and bottom with nylon bushing to fit into the cabinet body and pivot the door. Provide door with a recessed pull on the exterior and a friction catch on the interior. Door shall have sound deafening material applied to the interior.

T. Abutting joint between equipment items and between items of equipment and wall where less than ⅛" shall be sealed with silicone sealant. Where greater than ⅛", joints shall be filled with stainless steel trim strips.

U. Electrical outlets into items shall be furnished as complete assembly of box, block, plate, and be ready for wiring. Plates shall be stainless steel. Provide a chase way for the conduit and wiring in cabinet base fixtures.

V. Where threads of bolts and screws on the inside of fixtures come in contact with wiping cloth, they shall be capped with a lock washer and acorn nut. Wherever bolts are welded to the underside of trim or tops, the reverse side of the welds shall be polished. Depressions at these points will not be acceptable.

W. Each piece of equipment shall bear a name plate which shall be fastened to the equipment. Each piece of electrical equipment shall bear a plate showing complete electrical characteristics which shall comply in all particulars with the current available at the building.
X. On the tables not adjacent to wall with electric or plumbing connections necessary for operation, provide two (2) flange type feet and bolt to the floor with non-rusting screws and floor anchors.

2.05 Walk-in Refrigerator and Freezer Standards

A. All interior and exterior surfaces, except the floor and ceiling, shall be of .042" thick stucco embossed aluminum unless otherwise specified. All interior ceilings shall be mill baked white polyester finish on galvanized steel.
B. Walls, floors, and ceiling shall be 4" thick unless specified otherwise and insulated with urethane insulation having a "K" factor of 0.13 and capable of holding temperature as low as minus 40 degrees at a 4" wall thickness.
C. Doors:
  1. Doors shall have a clear door opening of 34" x 78" high. Doors shall be located in 46" or 69" wide panels. Doors shall be constructed of stainless steel on interior and exterior with tempered glass observation window in coolers to meet or exceed OSHA requirements.
  2. Doors shall be offset type having two (2) heavy duty hinges, pull handle, a cylinder lock, a door closer, and safety handle on the interior. All hardware shall have a satin aluminum finish or chrome plated.
    a. Provide on the sides and top, a thermal plastic gasket easily removable. At the bottom edge of the door, furnish an adjustable rubber wiper gasket. Gasket shall be resistant to oil, fats, water, and sunlight.
    b. Doors shall be insulated with 4" of urethane as specified for the walls.
    c. Construction of the door panels shall be identical to that of the walls, and shall include a heavy U-channel type reinforced steel frame around the entire perimeter of the door opening to prevent rocking and twisting. Furnish installed in the frame, an antisweat heater wire, completely encircling the door opening.
    d. Doors to have 3/16" aluminum diamond tread plate on each side, to be 36" high off of floor.
    e. Aisles to have non-skid strips.

3. Adjacent to the opening side of door, approximately 5′-0″ above the floor, furnish a heavy duty chrome plated, 5″ diameter dial thermometer or a digital readout minimum ½″ high. Thermometer shall be flush with the wall and have a recalibration feature.
4. Adjacent to the thermometer, mount a light switch with bull's eye. Switch shall be prewired to lights mounted in the ceiling of the walk-in and to the "J" box on top of the walk-in. Lights shall be wire protected, vapor proof, globe type with 150 watt bulbs. Lighting within walk-ins shall be a minimum of 25 foot candles on an even and equal basis.
5. In the ceiling of each walk-in freezer, furnish an air vent release.
6. Each section of the walls, ceiling, and floor shall have a tongue and groove, urethane edge. Panels shall be joined together by Rotoloc joint fasteners built into the edges of the box. Install on both sides of the tongue, a twin pressure sensitive gasket. Fasteners shall operate by means of a hex wrench. Provide a full compliment of snap in covers for lock holes.
H. All interior corners shall be coved.

2.06 Errors and Omissions

A. It shall be the responsibility of the foodservice equipment bidders to inform the architect of any discrepancies found within these documents to include: written specifications, drawings, or schedules, to allow an opportunity for the consultant to prepare an addendum to correct such discrepancies. Bidding on a known discrepancy with the intention of equipment substitution or price gouging through change orders will not be tolerated.
B. Written itemized specifications shall take precedence.

ITEM NO. xx - POT WASHING SINK: 1 REQUIRED

a. Fabricate and furnish one ea. pot sink with two drain boards. Requires ½" CW, ½" HW, 2" waste. Bowls to be 26½" x 24" x 14" deep. Overall size and shape as shown on plan.

b. Sink constructed entirely of 14 ga. type 18-8 stainless steel with all vertical corners coved on a ¼" radius. The front, bottom, and back to be formed of one sheet with front and back having a ¼" roll. Partitions to be double wall and fully welded in place. Splash to be 8" high with 2½" return (10½" overall). Ends closed and welded. 1" diameter holes punched in splash for faucet. Two (2) ea. faucets to be Fisher, model no. 3253, heavy duty splash type with 12" swing spout. Supply three each lever handle waste, 2" brass with removable strainer, and rear connected overflow. Each compartment to have die-stamped star in sink bottom for drainage. Sink to be mounted on 1⅝" O.D. 16 ga. stainless steel legs attached to fully enclosed stainless steel gussets welded to bottom of sink. Each leg to have an adjustable stainless steel bullet foot. To be 14" depth at partitions. Drainboards to be same material and finish as sink with back splash a continuation of sink splash. Front and end rims to be approximately 3" high terminating in a 180° roll on a ¼" radius. The drainboard is to be constructed with a pitch to drain into the sink. Back splash and front rim are not to be pitched, but to continue level. Drainboards to be supported on 1⅝" O.D. 16 ga. stainless steel legs attached to fully enclosed stainless steel gussets welded to stainless steel channel reinforcing on underside of drainboard. Each leg to have an adjustable stainless steel bullet foot.

c. Splash mounted pot rack to be constructed of 2" x ¼" thick stainless steel flat bar fully welded to 1⅝" O.D. 16 ga. stainless steel legs, extended thru splash, and secured to sink frame. Unit to be supplied complete with double pointed, sliding pot hooks at 6" on center.

d. Refer to fabrication drawings for details.

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